

AFTER THE BATTLE



BREAKING ENIGMA

Number 37

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Front Cover: The *S29* was built at Quincy on the Fore River, USA, and launched on November 9, 1922. Transferred to the Royal Navy in 1940, it was given the pendant number *P556*. It suffered a battery explosion at Weymouth, was towed to HMS *Dolphin* around 1941-42, and finally scrapped after the war. This is how it looked in 1978 at Pounds Shipowners and Shipbreakers Limited at Portsmouth — today it is minus the conning tower.

Centre Pages: Vestiges of war at Pounds. *Top left*: Churchill Mk VII, now almost impossible to retrieve. *Bottom left*: Ex-Canadian Ford Carriers, Windsor Mk I*. *Top right*: Stuart Mk 6 gun-towing conversion of the light tank. *Bottom right*: AEC 0857 armoured command vehicle, 6x6 Mk I, vintage 1944-45 — not for sale.

Back Cover: Hilltop memorial to the crash of Sunderland W4026, in which the Duke of Kent lost his life in August 1942 (David J. Smith).

Acknowledgements:

The Editor is grateful for permission to include an extract from *British Intelligence in the Second World War, Volume 1*, by F. H. Hinsley and others, published by Her Majesty's Stationery Office, in the chapter on Breaking Enigma.

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For nearly thirty years following the ending of the Second World War, the British authorities held a tightly-drawn veil over the wartime work of the Government Code and Cypher School, and withheld any intimation of its profound achievement in reading German coded messages almost from Day 1. American successes in breaking Japanese codes, including the diplomatic exchanges during the pre-Pearl Harbour crisis have long been known, and were fully documented by David Kahn in his massive treatise published in 1966 titled *The Codebreakers*.

Certainly, in view of the large number of individuals who were 'in' on Ultra (the codeword used to describe the cryptanalysis of signals enciphered on the German Enigma code machine), from the lowest Wren to the topmost statesman, it can be claimed to be the best kept secret of the war (unless, as is quite possible, there are other, even greater forbidden fruits yet to be disclosed). From the beginning the tremendous advantage to be gained by the ability to read an enemy's

'mail', sometimes before he even read it himself, commanded a tremendous respect from all those in the know. Whilst many service chiefs pressed for permission to include mention of Ultra in their post-war writings, this was denied by the Defence, Press and Broadcasting Committee which acts as a 'watchdog' to see that information gained during Government service is not transmitted to a wider audience without prior clearance.

Such a system is undoubtedly necessary, given the relative freedom for publishing activities in the Western world, but, as Marshal of the Royal Air Force Sir John Slessor commented, the inability of service chiefs to mention Ultra had an inhibiting effect on the writing of military history in every field. The Committee can also advise individuals how far they can go in revealing previously secret information and, for all the restrictions it can impose, does provide some reassurance to all those who venture into print after having signed an obligation under the Official Secrets Acts.



The Enigma coding machine, developed by a German, Arthur Scherbius, in the 1920s, was marketed commercially as a secret writing machine by the Chiffriermaschinen Aktiengesellschaft at No. 2 Steglitzerstrasse, Berlin. It was adopted by the cryptographic experts of the Wehrmacht and throughout the Second World War, in its developed forms, it was used by all three services of the German Armed forces. This actual model, serial number A6421 made in 1937, in the Science Museum, London, was produced by the successor company, Chiffriermaschinen Gesellschaft Heimsoeth und Rinke. Other examples are known to exist in private collections, as well as the Sikorski Institute, Royal Signals, and the St. Peter's Bunker Museum, Jersey (Crown Copyright, Science Museum, London).



BREAKING ENIGMA

That the secret of Ultra was maintained for so long, even by the thousands of 'technicians' who actually operated and serviced the codebreaking machines manufactured to speed up the task of breaking the coded messages, is even more remarkable. This loyalty stems directly from guidelines laid down by Fred Winterbotham, who as senior Air Staff representative in the Secret Intelligence Service, was responsible not only for the security of Ultra but also the organisation and method of distribution of its decrypts. The latter also posed two additional, vital questions: firstly, how to safely disseminate the decoded information so that the enemy would not, should he in turn decipher the Allied message, discover that his own code had been compromised.

Initially the 'one time pad' method was proposed as the only safe way of enciphering these messages (i.e. encoding by substituting random four digit numbers from pre-printed tear off pads which were used only once) as most codes using a transposition system, however elaborate, can be compromised given time. Later, by utilising the knowledge gained from deciphering the German messages, a new RAF Type X (or Typex) machine cypher was developed which, it is claimed, was never broken by the Germans.

Secondly Fred Winterbotham had to establish who, precisely, should be authorised to receive the information gleaned from the decrypts, one of the ground rules being that a commander must not make *visible* use of such

information which might lead others (including the enemy) to guess what was going on. This Winterbotham controlled by the use of 'Special Liaison Units' in the field whose job it was to ensure that no risks were taken which might compromise Ultra and so lead to the Germans adopting an alternative method of coding their signals.

Although the Defence, Press and Broadcasting Committee continued to exercise a total embargo on any mention of Ultra until the mid-1970s (Winston Churchill had resorted to the phrase 'most secret source' in his six volume history of the Second World War published 1948-54), the Government had promised in 1972 that an official history on the machinery of British wartime codebreaking would be prepared but that as this would be the 'unexpurgated' version, the publication would have to remain classified. (It is now believed that this account although secret, has been completed.)

Fred Winterbotham was the first to reveal the Ultra secret in his book of the same name published in 1974. Its revelations were astounding, putting an entirely different light on the actions of the commanders, their decisions, their successes and their failures, and rendering the background to some battle histories in need of an almost complete rewrite. Unfortunately Fred Winterbotham was not given access to any official documentation and thus was working entirely from memory. In the circumstances it was understandable if some errors crept in but it

Head of the Government Code and Cypher School (GC and CS) on the outbreak of war was a naval commander, Alastair Denniston. He had already foreseen that expansion of British codebreaking efforts would be of vital importance, and had decided that the universities of Oxford and Cambridge would be his first source of recruits. Thus he chose a country mansion at Bletchley, mid-way between both towns with good rail connections, for the expansion of the 'school'. The extensive grounds allowed space for the construction of overflow accommodation, and numerous wooden huts were erected by a local builder, Captain Hubert Faulkner. The huts were of varying sizes, Hut 6 for example, being 30ft wide and 60ft long with three small rooms either side of a central corridor and two larger at the far end. The furniture consisted of trestle tables and folding wooden chairs. Toilet facilities were not provided, staff having to go elsewhere. The perimeter of Bletchley Park was guarded by men of the RAF Regiment. The move to the new quarters was made in August 1939 under the cover, name of 'Captain Ridley's Hunting Party' — Captain Ridley being the man in charge of general administration. At the same time the official name was changed from GC and CS to Government Communications Headquarters, the name the organisation retains today although at a different location (Aerofilms).



To the thousands who worked on ULTRA, Bletchley Park was simply BP. Now it is used by the Post Office as a training centre although no mention is made of its former history in the brochure (*above*) given out to students today. Alastair Denniston remained in charge until June 1940 when his poor health dictated that a successor be appointed (Edward, later Sir Edward, Travis). The renowned American cryptologist William Friedman, who was the key man on the team which cracked the Japanese Purple Code, wrote to Denniston's daughter: 'Your father was a great man in whose debt all English-speaking people will remain for a very long time, if not forever. That so few should know exactly what he did . . . is the sad part.'

was not until October 1977 that the Government gave out any official information when a small batch of decoded Ultra messages were released⁴ to the Public Record Office in File No. DEF/E3. (For some, as yet unexplained reason, a set of five photographs of one of the British-designed codebreaking 'computers', codenamed Colossus, merely with an explanatory caption, was given to the PRO on October 20, 1975 in file No. FO850/234.) Also touching on the subject in 1977 came *Very Special Intelligence* by Patrick Beesly, followed in 1978 by *Ultra goes to War* by Ronald Lewin and *The Secret War* by Brian Johnson based on the BBC television series which featured the breaking of the Enigma codes in one of its programmes.

Most probably as a result of this and other disclosures of previously secret operations in the mid-1970s (i.e. The Double Cross System — see *After the Battle* No. 11), the Secretary of State for Foreign Affairs advised wartime intelligence staff on the limited extent to which they were absolved from their undertakings in the light of recent changes of policy with regard to the release of WWII records. On January 12, 1978, in a written reply to a Parliamentary question, he drew a distinction between the records of the various Service intelligence organisations which would eventually find their way into the PRO and 'other information including details of the methods by which this material was obtained'. He explained that the latter 'remains subject to the undertakings and to the Official Secrets Acts and may not be disclosed'.

Not until 1979 did the first part of a three-volume history of *British Intelligence in the Second World War* appear, and in it the authors stated clearly that 'the principles governing the extent of permitted disclosure' applied to this work. However, it was explained that the use of files which are unlikely ever to be opened in the Public Record Office was permitted although precise sources could not be stated, the authors reminding the reader that 'this text must be accepted as being the only evidence of their contents that can be made public'.

Volume 1 includes the role of the Government Code and Cypher School and an ap-

pendix covers the first official comment on the Polish, French and British contributions to the breaking of Enigma from which we have been permitted to quote:

The Enigma, an electro-mechanical wired encyphering machine with a series of drums or wheels, was put on the European commercial market in the 1920s. Adopted by the German Navy in 1926, by the German Army in 1929 and by the German Air Force (GAF) in 1934, it was thereafter subjected by them to a series of modifications — mainly the addition of variable inter-connecting plugs between the keyboard and the wheels, the introduction of new wheels and the resort to a variety of different ways of setting the machine and to more frequent changes of settings — with the object of increasing its security. By the outbreak of war, as a result of these modifications, the Germans judged that they had rendered it safe even in the event of capture; and they had indeed made it into a cypher system that presented formidable obstacles to the cryptanalyst. Instructions for arranging and setting the wheels could be changed as frequently as every twenty-four hours; anyone not knowing the setting was faced with the problem of choosing from one hundred and fifty million, million, million solutions.

General Gustave Bertrand, one-time head of the cryptanalytical section of the French Intelligence Service and author of the most detailed book about how this problem was solved, says he was prompted to publish after seeing the garbled story given in Michel Garder, *La Guerre Secrete des Services Speciaux Francais, 1935-45* (Paris, 1967). Garder's book does not mention the Enigma by name, though it states that the French obtained information about a German cyphering machine from an agent, beginning in 1937. Bertrand's account has in its turn provoked counter-claims and additional details. It is here summarised with additions and corrections from other sources.

Bertrand claims to have been in contact from 1932 (not 1937) to 1939 with a German, whom he calls Asche, who was employed in the cypher branch of the German Army till

1934 and in the Forschungsamt (Communications Intelligence Section) of the GAF thereafter. The claim has been supported by Colonel Paul Paillole, former chief of the French counter-espionage, who adds that Asche's name was Hans-Thilo Schmidt and that he was a 'playboy who spied for money'. Paillole explains that he was prompted to issue his information by annoyance at Group Captain Winterbotham's false claim that the secrets of the Enigma machine were first uncovered when a Pole who had worked in an Enigma factory in Germany was smuggled from Poland to Paris just before the war by the SIS (Special or Secret Intelligence Service).

From Asche, according to Bertrand, the French obtained no less than 303 documents graded *Geheim*, (secret) or *Geheime Kommandosache* about the Enigma. They included instructions for one of the Enigma machines, Army Enigma keys for 1932, 1933 and the first half of 1934, and a long text encyphered on the machine together with its clear text and all key data — everything in fact except information about the internal wiring of the wheels — and were indispensable for the break into the Enigma.

Bertrand further claims that, armed with this information, he approached the British, the Poles and the Czechs for help in exploiting it; that little happened with the Czechs and that the British showed little interest; but that to the Poles, who had been working on the Enigma since 1928 with a strong team of mathematicians, but with no data beyond intercepted messages, it came 'as manna in a desert'. Government Code and Cypher School (GC and CS) records are far from perfect for the pre-war years but they confirm that the French provided GC and CS (they say as early as 1931) with two photographed documents giving directions for setting and using the Enigma machine Mark I which the Germans introduced in 1930. They also indicate that GC and CS showed no great interest in collaborating, for they add that in 1936, when a version of the Enigma began to be used in Spain, GC and CS asked the French if they had acquired any information since 1931; and GC and CS's attitude is perhaps explained by the fact that as late as April 1939 the ministerial committee which authorised the fullest exchange of intelligence with France still excluded cryptanalysis. As well as saying that 'the British intelligence service . . . did not seem to show much interest', Paillole gives additional details about Franco-Polish collaboration — that following French contact with Warsaw in 1933, several experimental models of the Enigma machine were put together between 1934 and 1938; that Polish-French collaboration extended to the interception and decryption of German signals between 1936 and 1938, when Bertrand made several trips to Warsaw. A memorandum by the head of Polish Intelligence before the war, S. A. Mayer, which was written in response to Bertrand's book and is now filed with GC and CS papers, makes no mention, on the other hand, of the Asche material. It claims that the Poles simply bought the commercial model of the Enigma and set to work with a group of mathematicians to discover how it had been modified and improved for use by the German armed forces. In all probability the truth lies in between. This is suggested by three other accounts, based on interviews with some of the Polish mathematicians. One says that the Poles, using Bertrand's documentation, cracked the mathematical problem after buying a commercial version of the machine in 1932. Another says that the Poles had discovered in 1928 that the German armed forces were using a modified version of the commercial Enigma and that 'in 1932 . . . the Polish cypher bureau . . . had achieved a partial solution when . . . Bertrand provided some key Enigma documents obtained by Hans-Thilo Schmidt. The third accepts Bertrand's claim while thanking him for his

praiseworthy objectivity in nevertheless conceding that the Polish mathematicians played the leading role in breaking the Enigma.

On the work of the Polish mathematicians the Polish accounts provide the following further information. Recruited in September 1932, they took barely four-and-a-half months to 'crack the system of the early version of the Enigma'. From 1934, greatly helped by a Pole who was working in an Enigma factory in Germany, they began to make their own Enigma machines. However, these were crude and time-consuming, and it was only later that they developed mechanical versions of the Enigma machine. The final break-through, a mathematical one which 'resulted in the theoretical breaking of the Enigma machine at the beginning of 1933', and the con-

struction of Polish copies of the Enigma machine from 1934 were followed from 1937 by the development of the 'cryptographic Bombe', a machine devised for 'finding' Enigma keys by the rapid automatic testing of several tens of thousands of possible combinations. Improved versions of the Bombe were constructed up to 1939.

This information by no means establishes from what date the Poles actually read the Enigma traffic, or how extensively they read it. The answer to these questions is complicated by the fact that during the 1930s the German armed forces were continuously improving the Enigma machine. A German report on the Polish work states that on this account it suffered from long interruptions from January 1935 and again from October 1938. In addition, the Germans at first

changed the Enigma keys only once every three months, but later began to change them monthly and eventually changed them daily. Another difficulty arises because the Poles do not give details of the extent of their success against this mounting problem; nor do they ever mention the contents of their decrypts. One of their accounts claims in very general terms that 'Nazi messages' were read regularly from the first break-through until 1938. Another says only that after the introduction of the Bombe in 1937 an Enigma key could be broken in 'no more than 110 minutes'. A third account — the Mayer memorandum — appears to be more precise. It claims that 'by the end of 1937 our cryptologists had completely mastered the reading of intercepted German radiograms' and adds that in January 1938, in a two weeks' test, 'circa 75 per cent of this material was then deciphered'. But it does not specify which Enigma keys were mastered or how extensive the material was. Nor does it say whether the material was read currently, and the reference to a two weeks' test may mean that current messages were not being deciphered.

On this subject the Poles informed GC and CS at a meeting in July 1939 that they made their initial break into a pre-1931 model of the Enigma that was used by the German Navy, and that up to the spring of 1937, having worked out the wiring of the wheels with help from a stolen copy of the keys for a three-month period, they read naval signals more or less currently. They admitted, however, that after the end of April 1937, when the Germans changed the naval indicators, they had been able to read the naval traffic only for the period from April 30 to May 8, 1937, and that only retrospectively. Moreover, this small success left them in no doubt that the new indicator system had given the Enigma machine a much higher degree of security. With regard to military Enigma (by which they may have meant only army or both army and air) they stated that they had read it until September 15, 1938, when the Germans introduced two additional wheels, thus increasing the number for selection from three to five; that they had subsequently worked out the wiring of the new wheels; but that by mid-December 1938 they had ceased to be able to read the traffic.

The Poles were accordingly receptive when in December 1938 Bertrand took the initiative in calling a Franco-British-Polish conference of cryptanalysts to discuss Enigma. GC and CS was also interested by then. In April 1937 it had broken the Enigma used in Spain by the Germans, the Italians and Franco's forces after the outbreak of the Spanish Civil War; this was a machine similar to the commercial model. By the end of 1937, on the other hand, it had given up hope of breaking the different model that the German Navy was using. And during 1938 another approach to or by the French — the British approach made in 1936 had led only to the exchange of Enigma intercepts and DF bearings — had aroused GC and CS's interest by producing the plain and cyphered texts of four Enigma messages and information about the wireless networks of the German Army. Bertrand, however, admits that the French could make no progress on their own. He asked for the conference because the Poles had not reported any success to him and he was becoming desperate.

The conference met in Paris on January 7-9, 1939. There was, according to Bertrand, a useful exchange of technical ideas, and Bertrand's organisation and GC and CS agreed to exchange liaison officers and establish a teleprinter link. But there was no exchange of Enigma results. Mayer explains why: the Polish cryptanalysts, under instructions not to disclose their achievements unless the other participants revealed that they had made some progress, formed the impression that the French and British had



Secrets of the Enigma revealed. The scrambler at the top of the machine consisted of five different, lettered rotors, of which any three could be used in varying order, giving sixty possible wheel alternatives. A fixed drum, on the left, called the umkehrwalze, held twenty-six pin terminals through which electric current was 'turned around' to flow back through the rotors. The three rotors alone would give 26x26x26 combinations, i.e. 17,576 successive positions, before returning again to their starting positions. This gave 60x17,576 or 1,054,560 possible ways of setting up the scrambler unit. In addition, the steckerboard at the front, with a jack plug for each letter of the alphabet, gave a choice of cross-plugging to vary the normal path of the electric current through the rotors. Using thirteen stecker connections, the possible number of combinations increased to 8,000,000,000,000 and, by leaving four letters unsteckered, the variations rose to 200,000,000,000,000. Finally, the choice of which three-letter setting to set the rotors to begin with lay with the operator, which would give him 17,576 possible selections. Thus the problem for the codebreaker tackling Enigma was, to say the least, rather daunting (Crown Copyright, Science Museum, London).



nothing to offer. It was, however, at the invitation of the Poles that a second meeting of cryptanalysts from the three countries took place in Warsaw on July 24-25, and at that meeting they revealed that they had broken the Enigma and proposed full collaboration in exploiting it.

Bertrand records that when suggesting the July meeting the Poles announced that something new had happened, and implies that they became more forthcoming not only because Poland had received her guarantee from Great Britain and France in March, and was worried by the growing danger of war, but also because the Germans had again introduced new Enigma wheels on July 1, 1939. As it happens, the Germans did not add extra wheels to the army and air Enigmas in the summer of 1939, though they made other changes, and Mayer's memorandum confirms that what was then worrying the Poles was the fact that, whether because they had too few staff or for other reasons, they had not yet overcome the difficulties caused by the much greater change of September 1938. It states that after the January 1939 meeting the Poles had continued their 'solitary battle against the Enigma' but that despite the development of the Bombe they were 'for the time being unsuccessful', and that, as the international

Early attempts to break Enigma were attempted by analysing the intercepted coded messages after transferring them to punched lettered sheets. The job was laborious, time consuming and rarely successful — success usually coming about when a German cypher clerk made a mistake. What was needed was a mechanical way of running through all the possible combinations to compare the coded message with plaintext German and so try to emulate the Enigma, but in reverse. It was Gordon Welchman who conceived the idea of the 'Bombe' in November 1939 although it took Alan Turing, from Kings College, Cambridge, many months to turn an idea into reality. Working with Harold 'Doc' Keen of the British Tabulating Machine Company, an electro-mechanical 'computer' was developed (although that word was not then in use) at Letchworth. The BTM company was absorbed into ICL after the war but the original building where the Bombes were assembled still stands in Ignield Way — then the main factory but now referred to as 'One-One'. The Bombes were wheeled to this loading bay, transferred to ordinary lorries, and given no special escort to retain maximum secrecy.

situation was fast deteriorating, they decided to ask for close collaboration with France and Britain in 'solving the difficulties (that had) arisen out of the introduction of new wheels'.

As well as confirming what GC and CS learned at the July meeting — that although they had recovered the wiring of the September 1938 wheels, the Poles had not been able to read the military Enigma since the end of 1938 — this evidence is supported by what is known about subsequent developments. At the July meeting the Poles, as well as explaining the methods they had developed for breaking the Enigma, agreed to present the British and the French with a copy, one each,

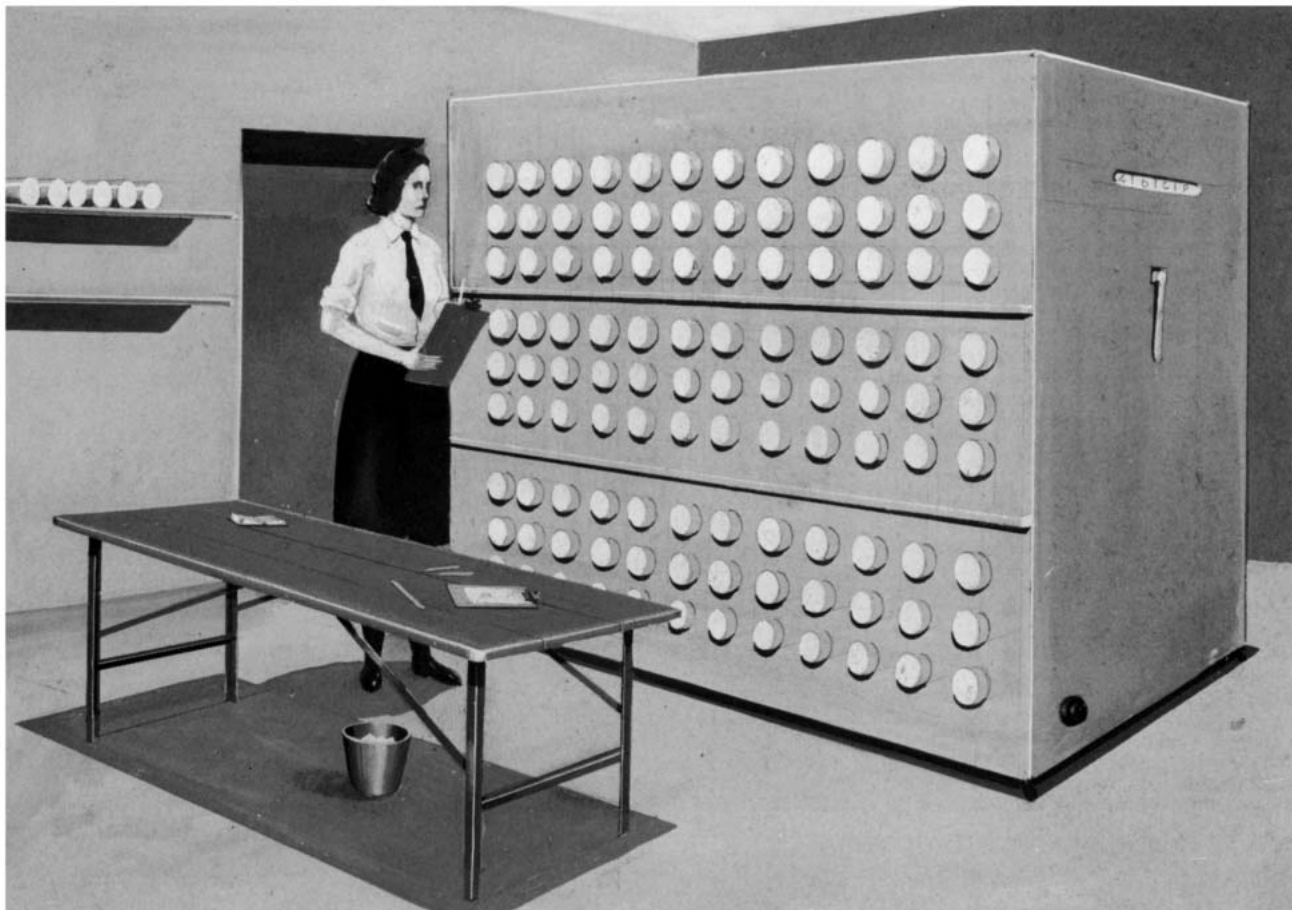
of a Polish-built Enigma machine and technical drawings of the Bombe; and it was settled that the British would concentrate on finding a method of breaking the daily keys while the Poles retained responsibility for more theoretical work. According to Bertrand, he took the British copy to London on August 16 and handed it over on Victoria Station to 'C' (head of the Secret Service) in person, 'C' being 'en smoking, avec rosette de la Legion d'Honneur a la boutonniere. Accueil triomphal!' When the various papers from the Poles — and in particular the wheel wirings — reached GC and CS it was soon possible to decrypt the old messages for which



Sub-assemblies for the Bombes were produced at other Letchworth factories — wiring at Spirella and engineering of the combination drums and other parts in what is now the Government Training Centre in Pixmore Lane. Codename for the project



was 'CANTAB', the first machines taking six weeks to construct but, later, built in batches of six, one came off the assembly line each week. The original machines used Holerith relays but these proved too slow and had to be changed to a Siemens type.



the Poles had broken the keys, but more recent messages remained unreadable. It is clear, moreover, that the Polish cryptanalysts, who were transferred to Bertrand's Paris organisation at the beginning of October, were not themselves reading the Enigma at the time: they believed that the Germans had again made wholesale changes to the Enigma on the outbreak of war, whereas the Enigma then underwent no change.

In the event the first war-time break into the Enigma was made with help from GC and CS by the Poles at Bertrand's organisation in Paris at the end of 1939. Bertrand implies that this break was made on October 28. The truth is that an Army Enigma key (the key named the Green at GC and CS) for October 28 was broken in the second half of December. In the autumn of 1939, as well as working on the improvement of the Bombe, GC and CS used the information it had obtained from the Poles at the July meeting to improve its own hand methods, which involved the preparation in large quantities of sheets with punched holes. By the middle of December, two copies of these sheets were completed, and one was sent across to Paris. 'At the end of the year', GC and CS records, 'our emissary returned with the great news that a key had been broken (October 28 Green) on the . . . sheets he had taken with him. Immediately we got to work on a key (October 25, Green) . . . ; this, the first wartime Enigma key to come out in this country, was broken at the beginning of January 1940'. The GC and CS account continues: 'Had the Germans made a change in the machine at the New Year? While we waited . . . several other 1939 keys were broken. At last a favourable day arrived . . . The sheets were laid . . . and (the GAF) Red of January 6, 1940 was out. Other keys soon followed'. The Mayer memorandum disagrees only in giving a later date for the solution of the key for October 28. It says that 'the cryptologists (in Paris) . . . noted only that on January 17 they finally solved the key

The Bombes went through continuous development to try to keep pace with German changes to the Enigma. Basically consisting of revolving drums, one drum position was provided for each letter of the alphabet, with three rows to duplicate the three wheels on the Enigma. Additional drums were added later. Because each German service had its own settings (referred to by colours), several sets of coloured drums had to be provided for each Bombe. Each drum had twenty-six connections and 104 brushes, each one of which had to be delicately adjusted with tweezers to ensure a good contact. No photographs have ever been released of a Bombe and all the illustrations which have appeared vary in detail. When operators recall being instructed to dismantle parts of the machines at the end of the war and another speculation is that they were sent abroad. At least one machine is believed to still exist behind closed doors.

for October 28 and that by the end of January 1940 they were sure that no further changes had been made to the Enigma'. Other Polish accounts agree with Mayer's date.

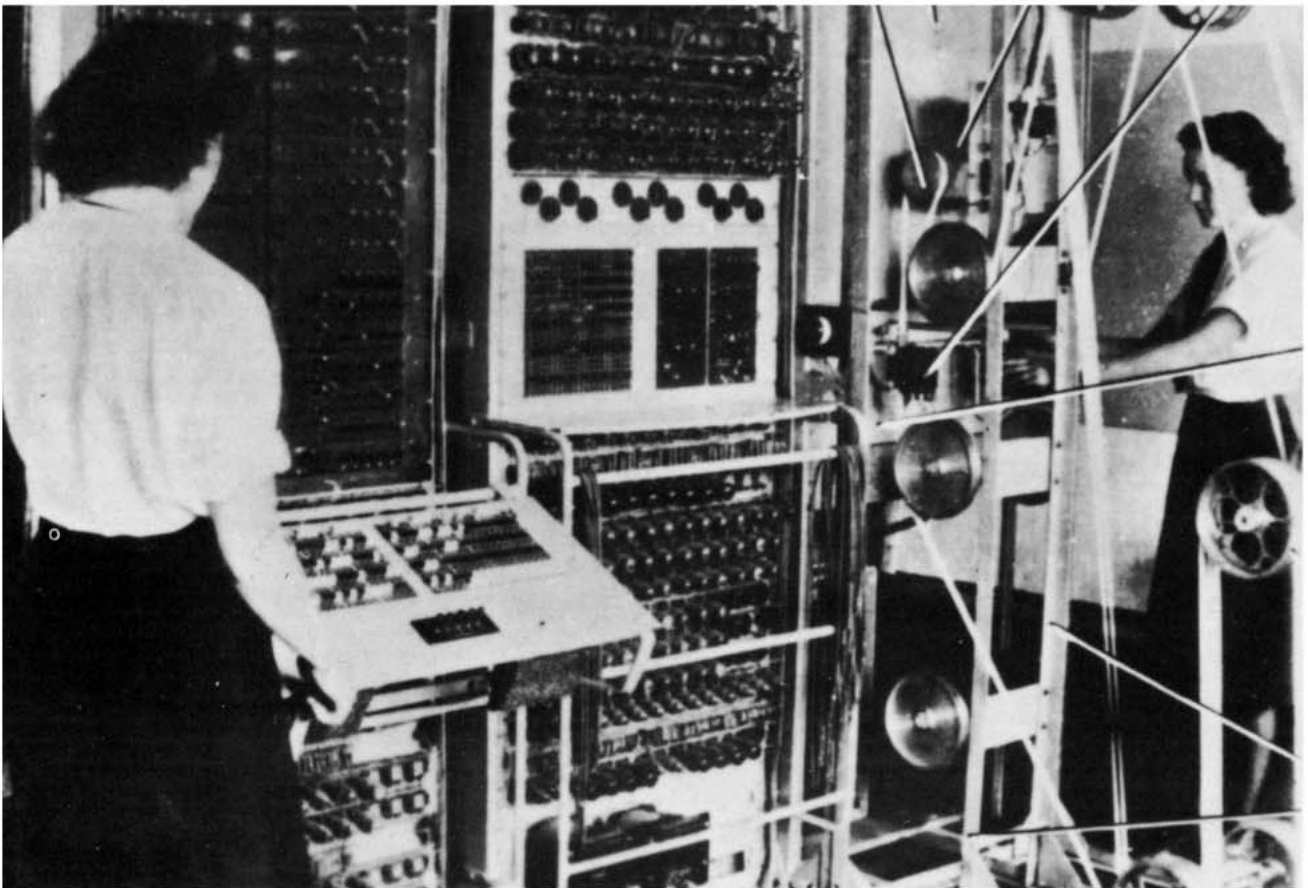
In the interval between January and June 23, 1940, the date on which, on the defeat of France, Bertrand's organisation dispersed, the Paris organisation and GC and CS continued work in close collaboration. Bertrand claims that up to June 14, in the period from October 28, 1939, 121 Enigma keys were solved; he also implies that the results were all produced by his organisation. But Mayer states that as well as investing in the development of the Bombe, which the French left to the British, GC and CS broke 83 per cent of the keys that were read at this time; he adds that in all 126 keys were broken in this period, for 100 days from July 6, 1939 to June 16, 1940. He explains that GC and CS's preponderance was due to the agreed division of labour, by which Paris concentrated on research while GC and CS gave priority to technical development aimed at the quicker breaking of daily keys, and to the fact that GC and CS was better organised and equipped than Paris to intercept and decypher the German traffic. It should be added that GC and CS's punched-hole sheets turned out to be much less laborious than the non-Bombe methods developed by the Poles and that by the end of May 1940 GC and CS had taken delivery of the first British-made Bombe.

The Bombe greatly increased the speed and

regularity with which GC and CS broke the daily-changing Enigma keys. From the summer of 1940, as more and better models were built, it was the essential basis of GC and CS's continuing and increasing success. On this account, and because GC and CS had not thought of the possibility of using high-speed machine testing against the Enigma before the July 1939 meeting, it has been argued that the Poles made their most valuable contribution by then providing the diagrams of their Bombe. But the British Bombe was of quite different design from the Polish and much more powerful; and it is virtually certain that the GC and CS Enigma team would in any case have realised the need to develop analogue machinery for recovering the daily keys as soon as it had discovered the wirings of the Enigma wheels — the more so since the team included Turing, who already had an interest in machine computation. In the light of these considerations it seems likely that the most important outcome of the July meeting was that the Poles handed over the results of their brilliant technical work in recovering the wheel wirings, though an additional benefit — imponderable but potentially of great psychological value — was the very discovery that the Poles had had such significant success.

If this is accepted, and if it is assumed that the delay in building the first British Bombe and in evolving the much improved logic for the later Bombes would have been the same as

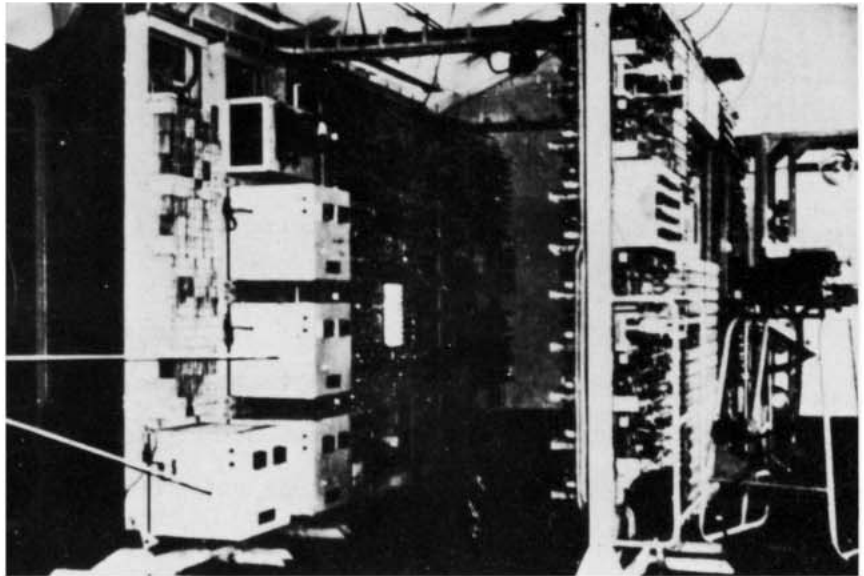
While signals coded on the Enigma machine were considered secure for everyday communication, the German philosophy was that, in the event of a message being deciphered by the enemy, this would have taken so long that the information would then be useless. Therefore, for really high-grade signals, something better was required. Built by the German telephone company, Siemens und Halske Aktiengesellschaft, the ten rotor Geheimschreiber (secret writer) machine was claimed to be unbreakable and was used for top level communication by the German Foreign Office, High Command and Hitler's own staff. Its attractions lay in the fact that the operator simply typed the message in clear which was then automatically enciphered by the machine, and transmitted at sixty-six words per minute. Should the coded signal be intercepted and run on a teleprinter, a meaningless jumble of garbled text would result. Known to BP as 'Fish', Geheimschreiber traffic was sent mostly by land line but that to Norway passed through neutral Sweden. It was there that Swedish Intelligence tapped the wire and passed the intercept to Arne Beurling who succeeded in cracking the code in May 1940. Later two machines were captured by the Eighth Army in North Africa. The Bombes were incapable of deciphering Geheimschreiber traffic and Bletchley therefore had to develop an entirely new type of machine to counter it. (This model, can be seen in the Musee Militaire at Pourville near Dieppe.)



On October 20, 1975, a set of six photographs was released at the Public Record Office. They showed for the first time the world's first electronic computer, constructed to 'read' the German texts at a speed far in excess of that possible with the Bombes. This speed was made possible by using thyatron triode valves, rather than electro-mechanical switches, which were mounted in 'rings' of ten to simulate the Geheimschreiber mechanism. The coded message, set onto a loop of 5-level punched tape, was 'read' by a

photo-electric reader, comparing it against pre-generated data. In this way every possible combination was tested in turn but the huge quantity of processing necessary before a message was broken was only made possible by the speed of operation — 5,000 characters per second for the first Colossus. Later machines achieved a five-fold increase in speed by processing five characters in parallel which involved additional electronic storage and circuitry (Public Record Office).

An early electro-mechanical version, dubbed Heath Robinson, which compared the message tape with a second 'key' tape, was in service in early 1943. The all-electronic model known as Colossus was operational on June 1, 1944. The design team was led by Dr. T. Flowers, a Post Office engineer who had been working on the automation of telephone exchanges since the early 1930s. The production of the first machine in only eleven months, using technology then in its infancy, was an amazing feat made possible only by the absolute priority given to the procurement of materials, services and staff. The work was carried out at the Post Office Research Laboratory at Dollis Hill in north London (now a factory estate) as Dr. Flowers explains: 'The first Colossus was constructed wholly within the Dollis Hill Laboratories and came into service operation at Bletchley Park in December 1943. Manufacture of a re-designed and improved version was commenced early in 1944 and a total of twelve such "production" machines were made and ten brought into service before the German capitulation in June 1945. The machined parts for all the machines and some of the rack frames for the production machines were made at Dollis Hill but some of the rack frames and most of the electronic panels for the production machines were made and the panels partly wired in the Post Office factory at Birmingham. All of the design, the organisation of the manufacture, the testing of the manufactured parts and their assembly on the racks, together with the final installation and commissioning at Bletchley Park were the work of a group of research and laboratory workers who occupied the east wing of the ground floor of the main research building. A long single storey building served as the workshop (see photograph). Only the experimental first Colossus was assembled complete at Dollis Hill and tested and



made to work before being shipped to Bletchley Park. The electronics and other parts not made in the workshop were made in the main laboratory. However, the parts first came together and first worked as a machine in a smaller room next door, the a.c. bridge laboratory. Time was too short for the production machines to be assembled and tested at Dollis Hill. The tape running gears, codenamed "bedsteads", were sent to Bletchley Park direct from the Dollis Hill workshop where they had been made. All of the electronic panels came into the main laboratory for assembly on the racks and testing for faults, each rack as it was completed being shipped to Bletchley Park where it was installed in its final position and all the inter-rack cabling and final commissioning carried out. Thus to pin-point where

Colossus was built involves difficulties. Perhaps the first experimental machine is the historic one: that was wholly built at Dollis Hill and came into existence as a complete machine in the a.c. bridge laboratory there. However, the bulk of the effective code-breaking was done by the production machines, the manufacture of which was spread over many places and their building completed on site at Bletchley Park.' To understand the power of the room-sized Colossus compared with today's computers, we contacted Brian Randell, Professor of Computing Sciences at the University of Newcastle upon Tyne who has written a detailed paper on Colossus. He says that a single present-day micro-electric 'chip' could easily contain the processing power and storage capacity of the wartime Colossus.



OFFICER ONLY.

MOST SECRET.

B 33

It has been reported by a reliable source that on 19 August the Records Office of a German Air Force formation was much agitated over the apparent loss of a package, containing among other things, - 1 gazetteer of small harbours on the South and South-East coast of England; 1 guide to DUNDEE and FIRTH OF TAY, and 1 volume of amendments in 16 parts.

This message must be treated as OFFICER ONLY and should not be transmitted by telephone. Air Ministry and Admiralty are in possession of this information.

M.I. 14.
1040 hrs.
20.8.40.

H. Winterbotham
Lieut. Colonel. G.S.
Distribution :

D.D.M.I. (I) (for D.M.I.)
G.H.Q. Home Forces.
G.H.Q. (Adv.) (I), Home Forces.
M.O. 3.

The whole ULTRA project can be broken down into three broad phases. Firstly there was the interception of the enciphered signals out of the ether by the 'Y' Service (which is too vast a story in itself to be covered here in detail). Then came the actual breaking of the message, via the Bombes, Heath Robinsons or Colossi installed at several different locations, and finally the dissemination of the end product. It was this latter stage that caused much concern lest the very use of the contents of the German messages betray the secret. This is the form that the information was passed on to those not privy to the Ultra secret, the words 'reliable source' or 'reliably reported' disguising the true provenance (Public Record Office WO/199/911A).

was in fact incurred, it is possible to arrive at an actual measure of the Polish contribution to the successes against the war-time Enigma. The first British capture of Enigma wheels was made from U-33 in February 1940. As this was seven months after GC and CS's receipt of details of the wheels from the Poles, the first Bombe would in the absence of Polish assistance have been delivered to GC and CS in January 1941 instead of in May 1940. In the interval between May 1940 and the following January GC and CS would have continued to read Enigma keys by hand methods with something like the frequency and something like the delay that it actually did between January and June 1940, and the regular and nearly current reading of a key, which in fact began on May 22, 1940, would have been correspondingly delayed. It must be added, however, that just as the operational keys that were actually read up to June 1940 were virtually confined to those of the GAF, the only important exception being an inter-Service key (the Yellow) which the Germans introduced for the Norwegian campaign, so

the only key that was actually read regularly from as early as the end of May 1940 was the GAF general key (the Red). The regular solution of German naval and army Enigma keys began so much later than the beginning of 1941, and was the outcome of so many other developments, that it is unlikely that the Polish contribution made any difference to the dates from which they were mastered.

Then in July 1982 came publication of *The Hut Six Story*, the first really nitty-gritty account of the actual workings of the code-breaking systems used at Bletchley Park where the author, Gordon Welchman, was in charge of Hut 6. The author (now an American citizen) admits that because it was difficult to distinguish between items of information learned from Enigma decodes and those picked up from newspapers and wireless broadcasts, even after the war he avoided discussion of wartime events for fear of revealing the secret of Ultra. Gordon Welchman reveals that with the publication of Fred Winterbotham's book in 1974 the secret was

out and that 'I felt that this turn of events released me from my wartime pledge of secrecy. I could at last talk to my friends, relatives and colleagues . . . and even write my own account of what actually happened'.

By first publishing the book in America (by McGraw Hill Book Company), the same course adopted for Sir John Masterman's Double-Cross book by Yale University, the British authorities are presented with a *fait accompli*. The technical aspects revealed are really astounding — for example reference about the form of layout of a 'menu' (see below), deleted in Miss Payne's account (officially vetted) which follows, is revealed in Gordon's book in precise detail.

The Hut Six Story is really divided into two parts: first, a really first-class definitive account of the methods used in developing, setting up and running the British code-breaking effort against the Enigma machine, and, secondly, an opportunity for the author to give a personal view on the lessons to be learned and how they should be applied to today's military thinking. Published in Britain by the Allen Lane division of Penguin Books Limited, although quite technical in parts, it is a real must for those interested in a subject of vital importance to our understanding of one of the most significant aspects of the Second World War.

All these publications, both official and unofficial, have dealt in the main with the wider, strategic view, and its impact on the conduct of the war in general and it is not intended to repeat this aspect here — the serious reader is referred to these sources for more detail. However, what has not been given its due is the role of those at the bottom — the girls of the Women's Royal Naval Service who actually worked the codebreaking machines for twenty-four hours a day, seven days a week throughout the war. It was a thankless task with no public recognition at the end of it and no rewards for perhaps one of the war's most decisive jobs. What was worse was the fact they could not discuss their work — either then or after the war — neither with their families nor friends — suffering many an awkward moment when asked 'Well, what did you do in the war then?' To a woman, the Wrens have kept their silence and their secret and even today many are reticent over speaking up, some even going so far as to disapprove of the disclosures which have taken place.

Diana Payne is one of those Wrens who now feels that a glimpse of these young women's war is long overdue and must now be brought to light.

In 1939, the Government Code and Cypher School had been relocated from central London to a country estate in north Buckinghamshire at Bletchley, called BP (for Bletchley Park) or officially codenamed Station X. To the Wrens who worked at Bletchley, following naval tradition of treating shore stations as ships, it was officially HMS Pembroke V. Within the grounds a number of temporary buildings, colloquially termed 'huts', had been erected to house the large numbers of additional staff required — Fred Winterbotham's section using Hut No. 3, Gordon Welchman Hut 6, and so on, the staff of each hut being highly secretive over their individual role in the overall Bletchley story. However, so great was the codebreaking effort that several other satellite 'factories' had to be set up — at first located in country houses in the area — but later in large purpose-built centres on the outskirts of London. This decentralisation was also to safeguard Ultra from the risk of bombing should one of the locations be hit and put out of action.

Diana Payne worked both out in the sticks and in London. Her memories are of 1942-45 and in November 1981 the Editor spent a fascinating day taking her back to the locations where Britain's greatest triumph and best kept secret of the war took place.



My Secret Life with Ultra

BY DIANA PAYNE

The breaking of the German Enigma codes during the Second World War and the effect it had on strategy, has been much publicised and debated since the restrictions of secrecy were lifted in 1974. But the human side of the story of the WRNS involved in the soul-destroying but vital work on the monster decoding machines has not been told in any detail. I want to try and describe my feelings as a young Wren thrown into this most extraordinary job, with all the tensions and isolation of not being able to talk about it to anyone until thirty years later.

My family were living in Cornwall, as our home in Hampstead had been destroyed during the Battle of Britain in 1940. I had

The first Bombe was in operation in Hut 11 at Bletchley by mid-1940, less than a year since its conception by Gordon Welchman. Within twelve months, up to a dozen machines were in action, split between Bletchley and the stable block (*above*) at the Manor at Adstock, about ten miles west of Bletchley.



The policy of dispersing the priceless Bombes at several different locations in the Buckinghamshire countryside continued during the build-up phase. Next on stream was the purpose-built 'Bombe hut' three miles north-east of Bletchley, at Wavendon Manor, photographed (*above*) in 1943 by Diana Payne (*below left*).



The Manor is now used as a school for maladjusted children and the building where the Bombes were housed has been converted into classrooms and ablutions. The building was originally devoid of proper windows to preserve absolute secrecy; here Miss Payne inspects the post-war 'improvements'.



A journey down memory lane for one ex-Wren. Forty years on, Diana, in the centre of the group, sits on the same steps leading from the lounge of the manor.



taken my first job as a clerk in the Ministry of Labour, with a salary of £2.7s. per week, but my ambition was to join the WRNS so I went to Plymouth to enrol. The centre of the town was in ruins after the German raids, but, incredibly, the main department store was serving canteen lunches in a makeshift hut on their bombed site. I went on to Devonport and was interviewed by a WRNS officer. It seemed that I had been accepted for boats' crew category in view of my sailing experience but suddenly she asked me if I could keep a secret. I answered that I really didn't know as I had never tried. In spite of this unsatisfactory reply, she said that I would be considered for Special Duties 'X' as a second choice. I didn't take in the implications of this, as I was still dreaming of life at sea, with the romantic idea of marrying a sailor.

My call-up papers duly arrived, and informed me that my category was Special Duties 'X'. Feeling very nervous, I reported for duty as a Probationary Wren at New College, Hampstead. After being enrolled we

lined up to have our heads searched for lice, which seemed a depressing start to my Naval career, but apparently this was a necessary precaution in all the Services. Then followed a strenuous fortnight learning Naval etiquette, squad drill, domestic duties and marching up and down the Finchley Road — there wasn't much traffic in 1942. We had a final passing-out parade and inspection by the exiled King Haakon of Norway.

After being 'kitted out', twenty-two of us were drafted to the mysterious 'Station X'. On arrival at Euston station, we had no clues as to our journey, so we enquired from the engine driver where he was going. He replied with a broad grin and informed us that the Wrens get out at Bletchley. From there we were driven to a remote part of the country to a beautiful Tudor house called Crawley Grange. This was our billet, one of several, including Woburn Abbey, which were used to house the workers of Bletchley Park at the headquarters of the Government Code and Cypher School. It was now only too clear that we were not to

be part of the Royal Navy, and my youthful dream was shattered, though I had no idea that I was destined to live with 500 women without a glimpse of the sea or sailors.

Next morning we were taken on the sixty-minute drive to Bletchley Park. It was a hideous Victorian mansion standing in grounds with several large huts. The first thing we noticed were a strange assortment of civilians going in and out of the main building. We were to find out later that they were Foreign Office cryptanalysts, mathematicians, chess players, to name but a few, who produced the vital 'Menus' which I will describe later. We were taken into one of the huts where the conditions of the job were disclosed. It would involve shift work, very little hope of promotion, and complete secrecy. On this limited information, we were given until lunchtime to decide whether we could face the ordeal. Only one girl tried to back out, warning us that she thought it would drive us all 'nuts'. However, we were young and patriotic, and there was only one



Wavenden with its extensive grounds gave the girls an opportunity to relax from the exacting work running the Bombes.



thought in mind which united the whole country — a rare moment in British history — and that was to defeat Nazi Germany.

So we decided to face the challenge, and all signed the Official Secrets Act which committed us to the job for the duration of the war and to keep the secret for ever (or so we thought then). The penalty for any breach of security was two years in prison.

Then the moment came when the heavily-guarded secret of the German Enigma codes was revealed to us. This was the beginning of over three years working on 'Watches' of four weeks duration: 8.00 a.m. to 4.00 p.m. the first seven days, 4.00 p.m. to midnight the second week, midnight to 8.00 a.m. for the third, and then a hectic three days of eight hours on and eight hours off alternately, ending with a much needed four days leave.

Training was necessary to master the intricate complications of running the machines known as 'Bombes'. These unravelled the Enigma codes thought to be unbreakable by the Germans. The Bombes were bronze coloured cabinets about 8ft tall and 7ft wide. The front housed rows of coloured circular drums. Inside each were a multitude of wires, every one of which had to be meticulously adjusted with tweezers to make sure the electric circuits did not 'short'. The back of the machine almost defies description — a mass of dangling plugs on rows of letters and numbers.

We were given a 'Menu', which was a complicated drawing of numbers and sets of letters, from which we plugged up the back of the machine and set the drums on the front. The Menu had a variety of cover-names, so we only knew the subject of the code and never the contents of the messages. It was quite heavy work getting it all set up, and I now understand why we were all of good height and eyesight. All this work had to be done at top speed, and at the same time one hundred per cent accuracy was essential. The Bombes made a considerable noise as the drums revolved, each row at a different speed, so there wasn't much talking during the eight-hour spell. For technical reasons which I never understood, the Bombe would suddenly stop, and we took a reading from the drums. This was put on a checking machine. If the letters appeared to be matching the Menu, the Enigma wheel setting had been found for that particular code. However, to make it even more difficult, the Germans changed this setting every twenty-four hours. The reading was hurriedly phoned through to the Controller at Bletchley Park where the complete message was decoded and translated. The good news would be a call back to say 'Job up, strip machine'. It was a thrill when the winning stop came from one's own machine which were individually named after towns in the UK and Commonwealth.

A veil of secrecy has withheld much on Ultra, even since its disclosure in 1974. In 1978, Dr. David Owen, the Cabinet minister responsible for the day-to-day operations of Bletchley Park's successor, the Government Communications Headquarters at Cheltenham, gave absolution to those who had previously held their silence in so far as they could 'acknowledge having worked as interceptors, cypher breakers, distributors or users of this material.' Restrictions still remained on the techniques and technology used by BP, thus Miss Payne was instructed that she could not describe the layout for a 'menu', used to set up the Bombes. In Gordon Welchman's July 1982 expose 'The Hut Six Story', a Bombe menu is illustrated on page 143 (right). The 'crib' was all important: produced by Hut 6, it was their 'guestimate' as to how the German operator had set his Enigma — the Bombes were used to check out their belief at a speed impossible to a human.



The fine Tudor manor of Crawley Grange, five miles north of Wavendon, was Diana's first billet. This is her photo of it in 1942; today most of the creeper has vanished and it has been converted into several separate dwelling units.



THE CRIB

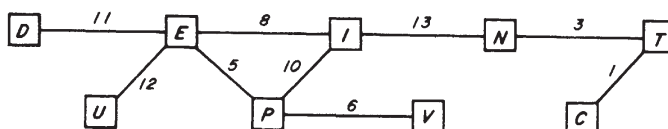
C Q N Z P V L I L P E U I K T E D C G L O V W V G T U F L N Z
T O T H E P R E S I D E N T O F T H E U N I T E D S T A T E S

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

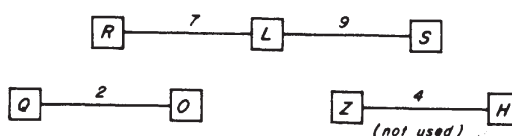
A B C D E F G H I J K L M
A A A A A A A A A A A A A A
A A A A A A A A A A A A A A

THE MAIN CHAIN

Positions 1 to 13 One Loop Nine Letters Nine Links



SUBSIDIARY CHAINS



(Test Register Connected to row E of the Diagonal Board)



Gayhurst Manor, with its associated chapel, lies eight miles due north of Bletchley, within sight and sound of the post-war M1 motorway between junctions 14 and 15. With up to thirty Bombes in use at Bletchley, Adstock and Wavendon, and production of the units approaching one per week, additional accommodation was a pressing requirement. Harold Fletcher, top mathematician at Cambridge in 1925 was involved in the administration of the Bombe programme and assisted the Admiralty in the requisitioning of Gayhurst and the construction of a large building in the forest on the estate to accommodate sixteen machines. From the size of the building which still exists today, it would seem that this was doubled up at a later date (Neta Chapman).

Due to the generosity of the Polish authorities before the war in handing over secrets of the early German Enigmas, the brains of Bletchley were able to evolve the more sophisticated Bombe. These were built by the British Tabulating Machine Company at Letchworth. We were taken there to watch them being made and to encourage the workers although we thought their conditions were better than ours. It was a surprise to see the large numbers of machines in production.

The outcome of this complicated procedure meant the German High Command, Army, Air Force and Naval messages were decoded in a remarkably short time. It is now known from Group Captain Winterbotham's book, *The Ultra Secret*, that during the Battle of El Alamein, Hitler sent a message to Rommel, but Montgomery received it first because Rommel's was delayed due to sand in his Enigma machine!

All the Wrens took the job very seriously, and we felt the weight of responsibility that any mistake or time wasted could mean lives lost. An example of this tension was when I took a Wren friend out to visit some relatives — in the middle of tea, she turned white and left the room taking me with her. She thought she had made an error whilst on duty. We worked it out on paper and decided all was well. Panic followed while we wondered how to dispose of the secret piece of paper which we burnt in a tiny bowl in the kitchen. My cousins, alarmed by the smell, thought we had gone quite mad. Another Wren due to have an operation for appendicitis, was so scared of talking under the anaesthetic, that she sought the advice of the Superintendent WRNS.

To keep our morale going, we were told that Winston Churchill was constantly on the line to his 'most secret source', and that our work was absolutely vital. Occasionally the monotony was relieved by news of our involvement in a past achievement, such as the hunting and subsequent sinking of the battleship *Tirpitz*. We had no status for this responsible job. My pay amounted to 30/- per week as an ordinary Wren, rising to £4.10s. when I became a Petty Officer. We had no category badges, and were supposed to say, if asked, that we were just 'Writers'. Sometimes it was very difficult having so little to say about one's life, and this explanation did not always satisfy relatives and friends, so my wartime activities were considered unimportant and something of a failure. It was never clear who was in charge of us as we were detached from the Navy, working under the Foreign Office, but the RAF provided technicians to service the Bombes.

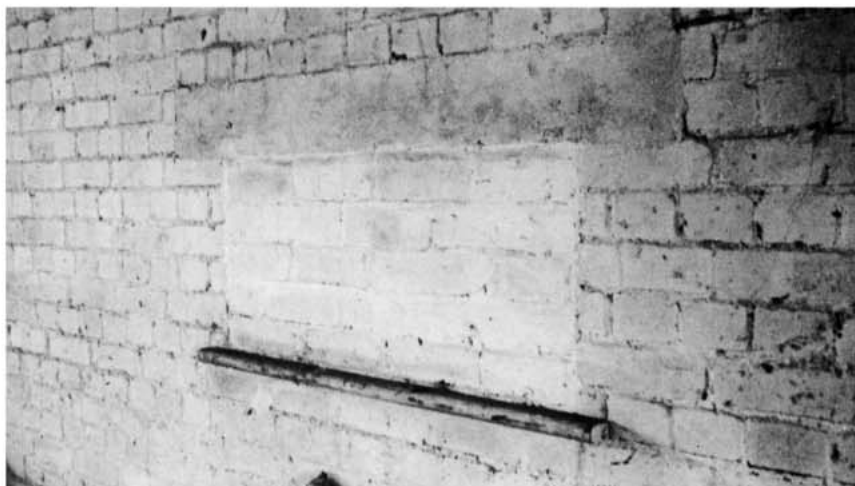


One problem on the Bombe project was to ensure that the accommodation was completely finished before the machines were ready for installation, as no outsider, builder or contractor, could be allowed inside after the Bombes were delivered. The Gayhurst building is the most interesting of all those used, in so far as it still can be seen almost as it was left in 1945.



After all the machines had been removed at the end of the war, efforts were made to remove all traces of what had taken place in the building. All fittings were taken out, and even the hatches to the checking rooms bricked up.

Our social life at Crawley Grange was somewhat limited. There was nothing to do except go for country walks or bicycle rides. The beauty of the Tudor setting was slightly spoilt by conditions inside. Cold and dark rooms with picturesque windows covered with creepers, and an acute water shortage in the summer. It is thought that the house was built for Cardinal Wolsey and that Queen Elizabeth I had slept there. We had one memorable occasion when Frank Lawton and Evelyn Laye came to entertain us. I think they had sympathy for our isolation, as they arranged for us to attend a special performance of the *Belle of New York* at the London Coliseum for the Royal Navy.



With the upsurge in German radio traffic resulting from their advances into the Balkans, Russia and North Africa, the existing machinery became severely overloaded even though it was run non-stop, twenty-four hours a day, seven days a week. Harold Fletcher recommended that a private school at Stowe be taken over but this was turned down at high level. Together with

Commander Michael Saunders, originally in charge of Hut 3 but now devoted entirely to the expansion programme, they had to settle for a brick office block nearing completion at Stanmore in north London. With plenty of room on the site to accommodate the hundreds of Wren operators, it proved an excellent move. Above: The Wrens march in. Below: The 'square' today.





After a few months I was transferred to another fine country mansion at Wavendon. Here we worked on the premises — a building in the grounds with very little light or air from the high windows. This prevented the noise of the machines being heard outside, but it certainly would not have passed the Factory Acts. There were no security precautions at all; I suppose so as not to draw attention to what was going on in this small village.

Life in the quarters was very pleasant due to the efforts of a WRNS Officer from New Zealand who had our welfare at heart. She ordered double doors to be built to the bedrooms to help us to get some sleep during the day, and provided cats to deal with the multitude of mice roaming the house. One night I found one nestling in my back, and that was on the top bunk. Here too, we had no transport, but we became expert in hitch-hiking, and always carried a supply of cigarettes to give to the obliging lorry drivers who drove us to London. I remember going on leave with a new-found Wren friend to her home in Yorkshire. We had to dash across the fields from the house to a railway halt at Woburn Sands, and, going via Sandy and Grantham, arrived in Bradford at 1.30 a.m. A wonderful welcome awaited with a special dinner including cream which was almost unheard of in 1942.

A few miles away at Gayhurst, another 150 Wrens lived and worked on the premises in conditions similar to Wavendon — cold rooms, no transport, and, I am told, swallows nested in the house and flew in and out through the broken windows. There too, mice abounded, and a dead one turned up in the gray-boat one lunchtime. It was a beautiful place dating back to 1086 and Sir Francis Drake owned it in 1581. The Wrens used the old church in the grounds every Sunday, and my friend recalls dutifully pumping up the organ.

In 1943 a large establishment had been built at Stanmore for the Wrens, (and, later, another at Eastcote), to accommodate the ever-increasing number of Bombes needed to cope with the flood of Enigma codes from the

Once a top secret code-breaking establishment, now a repository for books from the British Museum. The Stanmore complex still houses a number of Government departments, including the RAF and Inland Revenue, but it was in Block B that the Bombes were housed. Formerly protected by a perimeter fence and guardhouse, today only the marks of the gateway remain in the concrete.



many theatres of war. I was transferred there, and it was a very different set-up after the casual country life. There were about 500 Wrens plus quarters staff. We slept in 'cabins', fifty Wrens in each, on double-decker bunks. Discipline was strict. Even after working all night we had to attend morning parade and squad drill.

We worked in a modern, one-storey building surrounded by barbed wire and high walls. We were issued with special passes and Royal Marines guarded the entrance. There were about eight long rooms with ten Bombes in each. At this stage I was promoted to Petty Officer and was in charge of a room of ten Bombes with my own office and two assistant

Wrens. I took down details of the Menus and drew them out for distribution. It was non-stop, and any slip-up would cause the machines to go wrong and produce false stops. The strain was beginning to show. Many of us developed digestive troubles with the constant change of hours. My friend collapsed unconscious, suffering from overstrain and was invalided out of the Service. Another had nightmares, and woke up one night clutching a phantom drum. There were cases of girls going berserk on duty, and electric shocks from the Bombes was another hazard.

In spite of it all, we had some good times as well with frequent trips to London. Cheap or sometimes free theatre tickets were available



Left: The old entrance at Canon's Corner, London Road, used by the Wrens during the war has since been sealed off but the quarters' buildings (above) still stand, although many of the blocks were unoccupied at the time of our visit.



On parade outside the Wrens quarters — 1944-1981. The Canon's Corner entrance lies just out of the photo to the right.





Above and below: Because the Stanmore scheme proved so successful, another similar set-up was chosen five miles away at Eastcote, between Eastcote Road and Lime Grove. There, two buildings were nearing completion and a third block was finished within six months. Bombes were brought down from Wavendon,

Adstock and Bletchley to both Stanmore and Eastcote leaving Gayhurst as the only out-of-town location. The commissioning of the London bases raised the total number of machines in operation to around 200. (Then termed 'B' Block, the buildings are now used by the US Navy.)

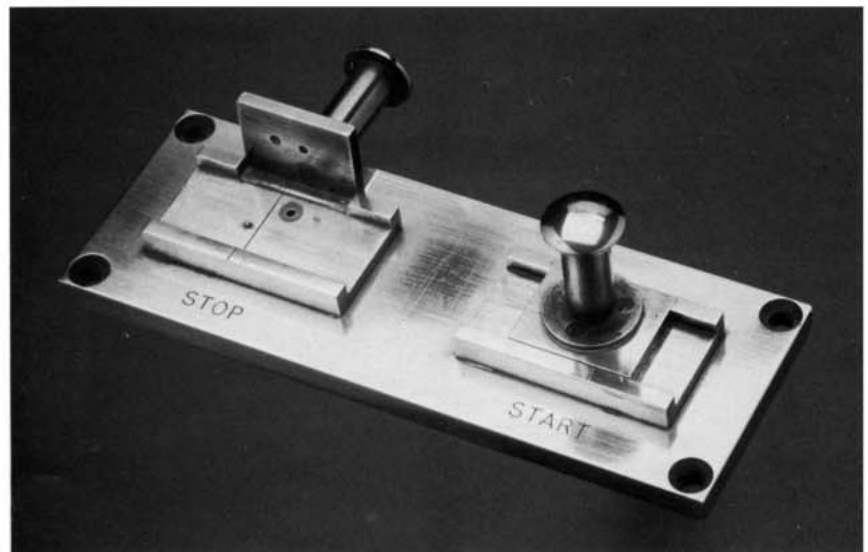
for the Forces. Another popular outing was to Brighton, where part of the beach was open to HM Forces only. The local residents watched our bathing parties with envy. A few dances were held at the WRNS Quarters to which members of the US Air Force from Bovingdon were invited. One New Year's Eve, we were invited to a dance on their airfield. It was a generous party — every Wren was presented with a gift pack containing cigarettes, sweets, playing cards, a darning set and gloves, etc. Alas, before midnight almost the entire orchestra had collapsed to the floor, and it was difficult to find a sober partner. A shocked WRNS Officer looked on as we exchanged our hats with the airmen. From then on, Bovingdon was out of bounds for the Wrens! For security reasons we were not allowed to visit the local pubs.

I began to feel that this strange life of secrecy and semi-imprisonment would never end but, quite suddenly, as Germany crumbled, the Bombes were idle and quiet, with no more Menus coming through from the brains of Bletchley Park. Brilliant they were, but the outcome of their work was dependent on the unremitting toil and endurance of almost 2,000 Wrens. The long chain began with the 'Y' Service which intercepted the coded radio messages and finished with the Special Liaison Units which distributed the information to the Allied Commanders who, in the final reckoning, either used or misused the information.

An appreciation came from Winston Churchill thanking the 'chickens for laying so well without clucking'. I had buried this part of my life so completely in my sub-conscious mind that it was a shock to see the story suddenly shown on television over thirty years later. But it does seem that the Wrens made a great contribution to the Ultra Secret, which has been described as the greatest intelligence triumph of all time. The fact the secret remained intact both during and after the war is a triumph of integrity for the thousands of people involved and for Group Captain F. Winterbotham, ex-Chief of Air Intelligence, MI6, who was in charge of the security and distribution of this priceless fore-knowledge of the Nazi plans, without which the war could well have been lost before the Allied Forces were sufficiently armed to achieve complete victory.



Although this feature can really only attempt to present an outline of the Ultra story, mention must be made of the effective maintenance procedures introduced by Sergeant Jones and his team of RAF engineers. The delicate wire brush contacts (over 15 million of them by the war's end), between the drums and the templates behind, needed constant attention apart from the complicated wiring inside the Bombe. A tireless worker with a flair for ingenuity, by 1945 Jones had been promoted to Squadron Leader.



The only artifact which we have managed to trace from the Ultra era is this punch for the Colossus tapes, a photograph of which was kindly supplied by British Telecom.



THE BATTLE OF THE BULGE—THEN AND NOW

In December 1984 *After the Battle* published *The Battle of the Bulge — Then and Now*, the result of five years' research by Jean Paul Pallud — to coincide with the fortieth anniversary of the German attack. Some idea of the difficulties faced in identifying the precise locations of previously uncaptioned photographs is illustrated in his investigation of perhaps the most famous of all the Ardennes pictures.

BY JEAN PAUL PALLUD

For years my attention had been drawn to a series of photographs, one of which was included almost of necessity in every book dealing with the last months of the war as the personification of the German soldiers of the period. It always intrigued me to see the variety of captions that authors gave them — from 'Waffen-SS near Rocherath' to 'Volksgrrenadiers attacking Bastogne' or even 'Grenadiers during the fight for Aachen'. Almost every German unit and every place on the Western Front had been 'depicted' by these pictures yet it seemed that no one really knew the precise unit, place and date involved. My personal interest for the whole Ardennes offensive in December 1944 originated with that fascinating set of pictures and the varied captions went with them.

In 1978 I started to xerox all the pictures from the sequence that I could find in books and began to analyse them. It soon became apparent that the majority had actually been taken in the same place and I therefore knew roughly which ones I needed. I obtained the original photos from the Audio Visual Archives in Washington, at which stage I discovered that the German negatives had been captured by the 3rd Armored Division some time between December 19 and December 21 (the circumstances of that capture are still unknown to me). Besides their obvious quality, there was another reason for the widespread use of the pictures: because the negatives had been captured

Above: Obviously a posed picture! One of a series of photographs, taken in December 1944, which have defied the 'after the battle' treatment until now. Jean Paul Pallud, seen here in his 'attack' position, pinpointed where they were taken whilst researching 'The Battle of the Bulge — Then and Now' (IWM).



These well known Bulge pictures are now proved to be a mixture of staged and action shots, using both still and movie film. At least Rottenfuehrer 'Z', giving the 'go' signal at the top of the page, is pointing in the right direction — westward — which is more than can be said of that of SS-Schuelitze 'W' (above) who advances south-eastward (IWM).



A marvellous photograph which appears in every 'Bulge' book, full of action . . . or is it? The man quietly walking in the ditch on the left gives the game away although he is usually masked off by picture editors to avoid spoiling the 'aggressiveness' of the picture. Having found the location where the shots were taken,

on the road between Poteau and Recht, 'JP' has done much to dispel former misconceptions. Schultze 'W' with the captured M1 carbine is on the right, with Sturmman 'X' crossing the road with his MP40. Note that the SS-grenadier in the centre appears to be grinning (IWM).



rather than destroyed or lost during the last days of the Third Reich, copies became readily available for publication from Washington or the Imperial War Museum in London.

When I received the set of originals I began to rough out a sketch plan of the place as it appeared to me from the photographs, though there were still many gaps to be filled. Having seen the same sequence on television, I knew that a cine film had been taken at the same place at the same time and I tracked a copy down in the Imperial War Museum film archives in 1979. Long and careful viewing of this film gave me much additional information of the place, which I chose to codename 'Lizza'. My drawing of the location became quite detailed and I discovered that, contrary to what has sometimes been written, these photographs are not stills from the cine but individual still pictures as either the photographer or cameraman had been taken by the other with a clarity which enabled them to be identified as SS-Kriegsbericht — that is, war correspondents.

At this stage, I compared my sketch with 1:50,000 maps of Belgium. Because the pictures had probably been taken prior to December 20, and the German unit involved the Waffen SS, I limited my search to the sector of the 6. Panzer Armee in east Belgium. This was still an area of some 400 square kilometres but I marked several locations where it looked as if the curve in the road, both in the sketch and the maps, matched. However, I still had to learn the hard way: that photographs often give a false impression as to proportion. In the event my mental picture of the place was fifty per cent larger than it was in reality.

Yet this is jumping ahead in the story. With what I felt was a clear picture of the place reconstructed in my head as well as on paper, I made a one-week trip to Belgium and Luxembourg in August 1979. I had some 200 other photos for comparison for the forthcoming book so I travelled all over the 'Bulge', visiting in turn the specific locations I had pinpointed at home. However, after two days it was plain that not one of the places I had narrowed down as a possible location for the series of photographs matched what I was looking for. What I had hoped was a scientific analysis of the photographs, enabling me to almost go straight to the spot, turned out a disappointing failure. I had not underestimated the difficulty of the job, as the pictures showed very few clear landmarks, but by the third day I had virtually given up any possibility of success.

Then a strange thing happened to me. As I was driving along a small Belgian road, at top speed as every French driver is supposed to do, I had a sudden 'revelation'; my mental picture suddenly matched what I was seeing. I quickly stopped the car and backed up. I couldn't believe my eyes. There it was . . . the whole scene I had visualised so many times during my waking (and sleeping) hours. The birch tree . . . the fir tree . . . the telegraph post . . . a stone . . . another stone . . . another fir tree . . . the lane . . . and the field, and even if the house had completely disappeared, its foundations were still there to be seen. That was when it was brought home to me just how far my imagination had enlarged the scene in my mind's eye. The road was much narrower, the bank smaller, and the curve much less than the one I had looked for on the maps.

After my return home, I continued my research into 'Point Lizza' and decided to return in December to take comparison photographs at the correct time of year. I then discovered that another German cameraman had taken film at the same place about December 25, 1944. On his film, which was of rather poor quality, I managed to identify the vehicle burning in the field in the first film — an American M5 light tank. Then, to my



astonishment, I found in Washington an aerial photograph of 'a road north of St. Vith': it was, in fact, another picture of 'Point Lizza' showing the exact length of road in my sketch.

Unknown to me, another chap, a Belgian, John Beauval, was also interested in seeking out the same place made famous by the photographic coverage. While on holiday in Spain he spent many hours poring over maps of the region, and he also made a sketch of what he thought the place looked like although without the opportunity to view the cine films. His map investigation method enabled him to find the spot although two years after my own success. We met in March 1982 to shake hands at the place where thirty-eight years before German grenadiers had partaken of captured American cigarettes.

All the pictures had been taken along a short stretch of road between Recht and Poteau, along a curve less than one kilometre north of the crossroads. The area at the time was no-man's land and small, individual fire-fights were taking place around the junction as Combat Command A of the 7th Armored

Although this could possibly be a genuine attack, on the cine film one can see the men awaiting their cue to move off. At least the direction is correct — southwards — and the attitude of the soldiers appears realistic. Rottenfuehrer 'Y' with the StG44 is in the ditch with Rottenfuehrer 'Z', with a Kar 98, leading the way (IWM).

Division mounted a counter-attack. The men of the 1.SS-Pz. Division who appear in the pictures only fought for one day in the area, and held the place only for a few hours; for the next five days battles raged back and forth across the fields. The crossroads, just a few hundred metres away, controlled a vital exit road from beleaguered St. Vith and, as a consequence, the 7th Armored could not relinquish the ground. On the morning of December 18, the commander of CCA, Colonel Rosenbaum, received an order from his divisional commander, Brigadier General Hasbrouck: 'Imperative you seize Poteau this pm and hold it'. Right up to Christmas Eve, the 7th Armored and 1. SS-Pz., and later the 9.SS-Pz., battled it out to keep control.



One of the few genuine pictures depicting the fighting for the Poteau crossroads. A group of grenadiers (not including our 'film star heroes') moves towards the road junction — the abandoned American convoy is on the road to the right. Note the same electricity pylon visible in the aerial photograph (IWM).



Attack of 1.SS-Pz.

The first set of pictures and cine film (the material that was later captured by the Americans) was shot on the morning of December 18 when the vanguard of Kampfgruppe Hansen (1.SS-Pz.) had just reached the area and were moving towards the crossroads. During the afternoon, an American counter-attack pushed the Germans back north of the crossroads. The American convoy captured earlier by the Kampfgruppe was one of the victims from the 14th Cavalry Group, the marking 1 A 18 C clearly visible on an M8 armoured car, identifying it as belonging to the 18th Cavalry Reconnaissance Squadron which, with the 32nd CRS, composed the 14th Cavalry Group.

Caught by sheer panic during the confused first days of the German offensive, some American outfits strove to escape westward: these units were largely instrumental in the huge traffic jams that blocked every road to the frustration of the 7th Armored Division

which tried to move east to bolster the defences of St. Vith. The 14th Cavalry Group succumbed to the confusion and, on December 17, it was completely disorganised and had lost or abandoned a considerable number of vehicles. The group headquarters was now set up in Poteau and by midnight on December 17 orders had arrived for the cavalry group to return to Born, which it had just evacuated, and hold the place!

In the evening, the group commander, Colonel Devine, had left with most of his staff for the 106th Infantry Division command post, and the senior officer remaining at the headquarters, Lieutenant Colonel Duggan, gathered together as many men as he could to comply with the orders. Part of Troop C, 32nd Squadron, elements of 18th Squadron, and one of the remaining platoons of towed 76mm anti-tank guns from the 820th Tank Destroyer Battalion, were placed under the command of Major Mayes. With great difficulty the Task Force was organised and the vehicles lined up in convoy on the road facing north toward Recht.

At first light on December 18, Task Force



Mayes moved out from the Poteau crossroads but had travelled north for only three hundred metres before a Panzerfaust set fire to the leading M5 light tank and an M8 armoured car. In the light of the burning vehicles, the Americans could see the figures of the grenadiers silhouetted in the field advancing towards the crossroads. Leaving most of its vehicles stranded on the road, the Task Force pulled back to Poteau and hastily set up a defensive position. All through the morning, elements of Kampfgruppe Hansen, backed up by some Jagdpanzer, pressed in on the crossroads. By midday the situation was critical for the small American force and Lieutenant Colonel Duggan gave the order to withdraw to Vielsalm. While the few remaining vehicles succeeded in carrying the wounded out, most of the cavalry moved back to Vielsalm on foot. Kampfgruppe Hansen made no attempt to drive on to Vielsalm, leaving only a small group of grenadiers to hold the vital crossroads, it resumed its efforts westwards along its assigned line of advance: 'Rollbahn E'.

My analysis of the pictures indicates that there was no real fight for the convoy, and that the Task Force withdrew very soon after the first shots were fired at them by the

grenadiers. The M8 armoured cars and M5 light tanks tried to negotiate the bank beside the road to escape across the fields and, although some may have succeeded, two M8s bogged down and one M5 was disabled in the open and started to burn. A 76mm anti-tank gun was uncoupled from its half-track but its crew left, before the gun was actually in position. No prisoners appear on any of the films.

Considering the photographic evidence as a whole, the German Kriegsbericht were provided with an exciting background of burning vehicles and advancing grenadiers. The German troops at first moved southwards, in the direction of the crossroads, and thus grenadiers are seen moving in the field by the road as a Panzer IV/70(V) tank destroyer leaves the blocked road to proceed by the same route. Then, after a sequence of posed shots, the withdrawal of the men ordered back to Recht is depicted: a group of grenadiers retire; an officer and his orderly move back across the field, and two Germans strive to extricate a jeep from the tangled mess of transport to drive it northwards.

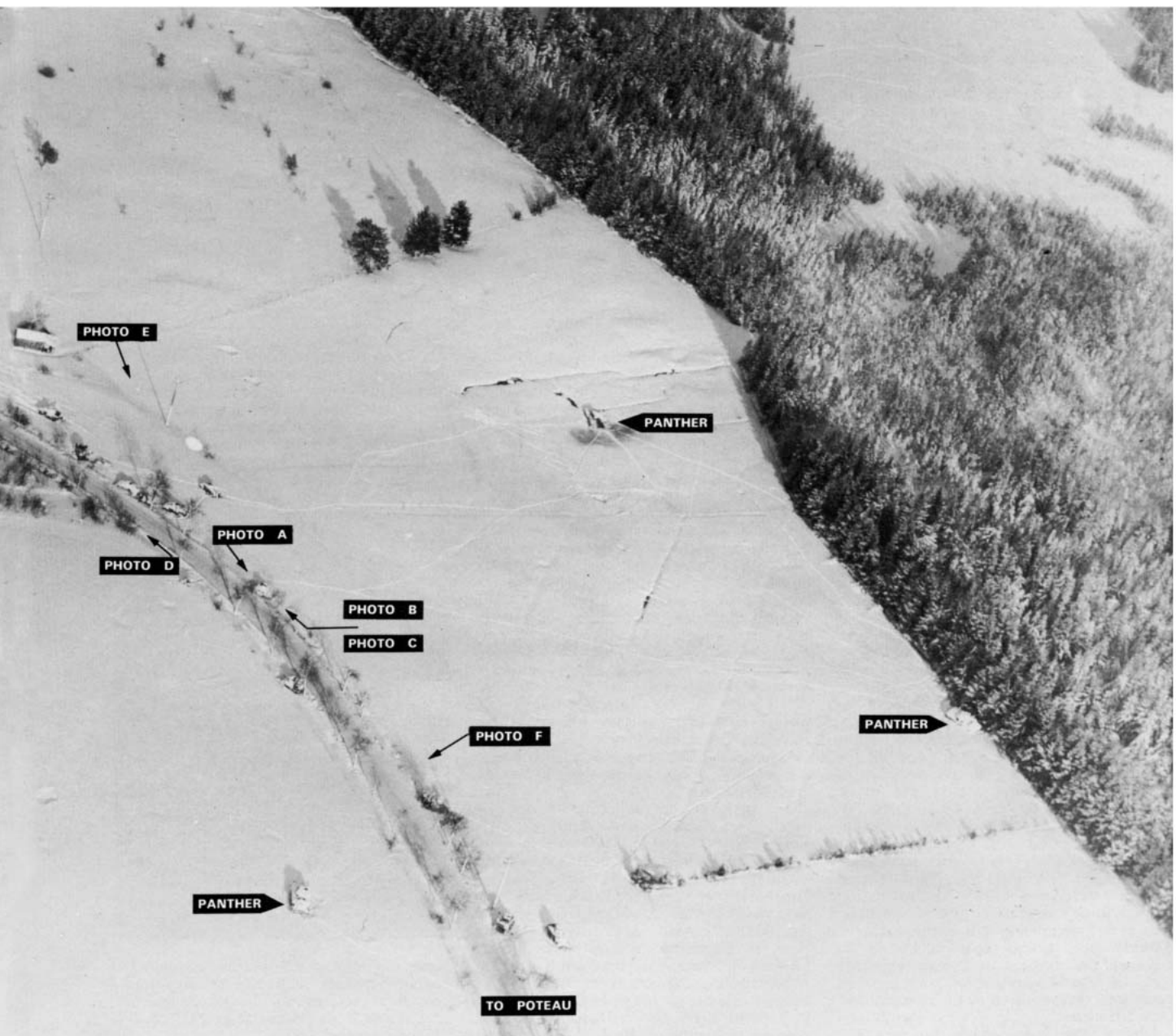
It is plain that some of the footage has been deliberately set up, as the same group of ten men — SS grenadiers but also at least three

men from a Luftwaffe field unit — attack south, west and even north! Most of the prominent 'heroes' of these actions are SS grenadiers: Rottenfuehrer 'Y' with his Sturmgewehr; Rottenfuehrer 'Z' dressed in a waterproof garment; SS-Schuelitze 'W' with his captured M1 carbine, and of course the very well known SS-Schuelitze 'V' — the MG42 machine gunner — smoking American cigarettes.

I have identified the men as belonging to 2. Kompanie, I. Abteilung, SS-Pz. Gren. Rgt. 1 of the 1. SS-Pz. Division, and the Panzer IV/70(V) as coming from SS-Pz. Jg. Abt. 1 attached to Kampfgruppe Hansen.

The origin of the Luftwaffe troops is more difficult. The nearest paratrooper unit was the 3. FS Division although this was away to the north-east. However, it is possible that small

This Signal Corps picture, until now just captioned as 'west of St Vith', is now proved to have been taken of the same location. The craters in the fields are from the US artillery barrage which stopped the 9.SS-Pz. Division attack. The annotations refer to the positions where the photographs included in this article were taken (US Army).





groups of Fallschirmjaeger moved up behind the Kampfgruppe along its line of advance, from the Manderfeld area to Poteau, as similar groups followed the better known Kampfgruppe Peiper to La Gleize and Stoumont. Another explanation could be that they belonged to 'Group Solar' — the special forces led by Skorzeny ('Doktor Solar'), of which nearly half had paratroop origins; some 800 coming from the Luftwaffe and 380 from SS-FS Abt. 600. Gruppenfuehrer Preiss, commander of I. SS-Pz. Korps recalled: 'During the first days of the offensive I encountered elements of "Group Solar" on the roads. They were dressed in Luftwaffe uniforms and described themselves, if I remember correctly, as Luftwaffe field replacement battalions.'

On a lower level, the photographs give a good idea of the Wehrmacht at the end of 1944: a mixture of highly motivated troops, well equipped and backed by armour, bolstered by a motley collection of low grade soldiers typified by the frightened look in the eyes of the young soldier in an oversize old greatcoat and a helmet too big for him.

Attack of 9.SS-Pz.

The set of pictures and films taken in December by the Germans can be supplemented by the aerial view taken on January 24, 1945 from an American light aircraft. In that picture, taken when the Americans had just regained control of the area, one can see some wrecks of the American convoy disabled on December 18, some vehicles having been removed and others pushed off the road. Also some other wrecks can be seen that were not there earlier, notably Panthers disabled four or five days later during another stage of the fight for Poteau crossroads.

The 1. SS-Pz. Division had moved west to back up Kampfgruppe Peiper, and by the evening of December 18 the elements of Kampfgruppe Hansen, which had taken Poteau, had left the area. CCA of the 7th Armored Division, whose counter-attack had regained the crossroads, had organised its position around Poteau and established contact with CCR on its right flank. Facing them now were units of the 9. SS-Pz. Division whose leading elements had reached Recht by midday on December 19 and, to the south, the Kampfgruppe troops that continued to maintain the pressure at Poteau while the bulk of the Kampfgruppe was engaged westwards in the direction of Vielsalm and Grand-Halleux.

During the days which followed the



grenadiers infiltrated the woods around Poteau and launched several attacks towards the crossroads. At 12 noon on December 21 Kampfgruppe Telkamp, of the 9. SS-Pz. Division, attacked in force from Recht with its Panthers on both sides of the road. The attackers were allowed to come well out in the open, in fact, to the place where the American convoy had been ambushed three days earlier, before it was hit by the devastating fire of all the tanks and tank destroyers of CCA. Sturmbannfuehrer Telkamp, commander of SS-Pz. Rgt. 9, was personally leading the attack but his own Panther was disabled by a TD shot and started to burn. Telkamp escaped unscathed but two members of the crew were wounded and the driver, Sturm-mann Schneider, was killed. Five Panthers were disabled during these attacks but in the aerial view only three are clearly visible. Possibly the missing two may be out of the picture although they may well have been recovered by the division after having suffered only minor damage. The other smaller wrecks are probably also ones belonging to Kampfgruppe Telkamp.

The pressure against Poteau was kept up over the ensuing days and the 18. Volksgrenadier Division, as it moved forward, now added its weight against CCA. On the morning of December 24, the 9. SS-Pz. Division launched another attack which would have made the withdrawal of CCA, planned for that afternoon, extremely hazardous. However, by chance, a flight of Lightnings bombed and strafed the road south of Recht, just when the grenadiers were reorganising for another assault, so that when CCA started its withdrawal, the 9. SS-Pz. Division was not in position to hamper it. By 3.30 p.m. the last

Above: A photograph used many times to epitomise the Ardennes offensive. SS-Schuelze 'V', an MG42 machine gunner, often described as being armed with a Colt. Right: This shot clearly shows the weapon as a 9mm Browning High-Power — production of weapon continuing at the Fabrique Nationale d'Armes de Guerre (FN) factory at Herstal, Liege, after the German occupation.



American tanks left Poteau moving fast toward Vielsalm; and while artillery fired a few final salvos to discourage pursuit, grenadiers of the Gren. Rgt. 293, 18. VG Division, entered Poteau.



PORTSMOUTH GRAVEYARD

In 1864 Henry George Pound founded a firm of wood, coal and oil merchants at Portsmouth. After the First World War the prolific number of naval craft 'surplus to requirements' led to diversification into shipbreaking at Porchester on ground now leased to Vosper-Thorneycroft. The ending of the Second World War created an even greater demand for the scrapyard and nineteen acres around the 1799-vintage Tipnor magazine became the last resting place for military hardware of every description. Officially titled Pounds Shipowners and Shipbreakers Limited, the yard is now owned by Henry F. Pound, grandson of the founder, and managed by Tony Cornish, a cousin who joined the firm in 1958.

In the years following the ending of the Second World War, scrap metal was in great

demand as European industry geared itself for the conversion to peace, the mass production era and the replacement of its ageing machinery. Allied armour, no longer of use to the armed forces, began arriving in the form of Covenanters, Cromwells, Achilles, Sextons and Priests to be followed later by the Churchill and Stuart. Shermans never featured in the post-war scrap sales as they still found ready markets with many overseas armies. Most of the vehicles were 'non-runners' and after being off-loaded from their transporters at Pounds, tanks would be towed piggy-back fashion on top of others in an effort to cram in as much as possible. Others would be craned into position forming incredible piles forty and fifty feet high.

It is only natural that scrapyards are unsightly and that most people do not appreciate

their value and significance as the graveyards of man's mechanical beasts. Pounds raison d'être is simple: 'Somebody uses them, somebody sells them, so somebody has to scrap them'. In recent years, the location of the yard, situated on the waterfront right next to the greyhound stadium, has led to a running battle with the local authorities who, no doubt, would like to have seen the yard move elsewhere although planning approval for the site had been given over thirty years

War's debris lies rusting on a south coast foreshore. Top: Dodge T245 ¾-ton 4x4 M43 ambulance, US Army Medical Service, US Air Force, circa 1950. Below: A landing craft, reputed to have been used on D-Day, lies on the inland side of the M275 motorway.



previously. However, Pounds, having been associated with the Royal Navy and Portsmouth for a hundred years, dug their heels in — the result being that for many years all publicity was avoided in case the situation was exacerbated even further.

Construction of the M275 bisected the yard and its associated tidal waterfront in Tipner Lake, causing considerable problems with the mooring of ships for scrapping. One destroyer, which would have taken a year to cut up by the small resident staff, was left isolated on the inland side of the creek. Although the new motorway crossed the water via a bridge, headroom was severely restricted and the big variation from high to low water meant that any vessel only had twenty minutes to negotiate the bridge — not long when one is towing an ungainly, unseaworthy hulk. Portsmouth Council would not give permission for the ship to be broken up on the inland side of the motorway so all the superstructure had to be removed down to deck level before it would pass under the road.

Soft-skinned vehicles — jeeps, GMCs, Whites, Macks and Champs — also arrived at the yard but the WWII armour really finished coming around 1953-56. Although ninety per cent was cut up and delivered to smelters — probably ending up in today's motor cars — the bottom dropped out of the scrap market in the mid-1960s. From that time onward, the price paid for scrap at the mills was less than the cost of cutting it up and hence most vehicles already in the yard were stockpiled against better days in the future. Fortunately for enthusiasts, although not necessarily for Pounds, that situation still prevails today, resulting in the forced preservation of many tanks, carriers and the like.

With the scrap recession, Pounds' interests turned to shipbroking although the motorway compounded the problem of providing a deep water mooring for vessels awaiting sale. Today the firm trades in vessels up to around 6,000 tons and corvettes, minesweepers, patrol boats and trawlers are bought and sold worldwide.

Although a Churchill tank had been made available to the Imperial War Museum in the 1960s, for many years Pounds shunned private sales. After years of badgering, and a change of heart by the company, Peter Gray managed to purchase his M-10 in 1978 (see *After the Battle No. 25*) and other sales have included Bren carriers to John Marchant, as well as an ex-Suez Centaur, a Stuart minus turret and Humber Scout cars; Churchills to Tony Bamford (of JCB fame), Peter Dirkan, Dave Ide and Doug Arnold; M-10s to Oswald Plant, the Maginot Line at Hackenberg and Guy Black; a Sexton to Duxford; Covenanters to Preston Isaacs and a Valentine to Brian Clifford. A recent sale has been an M-10 to the new war museum at Bayeux.

Tony Cornish says that enthusiasts are always treated sympathetically as far as price is concerned but some are dismayed when they learn that transport costs usually outweigh the price asked for the tank and that all vehicles are sold in situ. This means that some considerable efforts, both mechanical and manpower, are necessary by the purchaser to remove the tank from its thirty-odd year resting place. Small trees and bushes have often grown up around the vehicles and extraction of one exhibit often means the removal of others which block its path. All the armour has been demilitarised before sale to Pounds by cutting the barrel and the breech of the gun.

As Henry Pound is keen to retain one of each vehicle as a representative sample of those which have passed through the yard, several interesting museum pieces are not for sale, including a Beach Armoured Recovery Vehicle (also used to tow or rather drag vehicles around in the yard). Most of what is now left today is either engineless, difficult if not impossible to extract, or in bad condition.



Its fighting days long since over, this Churchill Mk VII infantry tank awaits its fate surrounded by the growth from both man and nature.



Below: Self-propelled mounting for a 25-pdr Sexton II of Canadian origin. This vehicle was returned to Canada and restored in 1981 by the Canadian Military Historical Society in Rockwood, Ontario.



An ex-Canadian Ford Carrier, Windsor Mk I*, perched upon an unknown pile of scrap.



Universal Carrier T16 by Ford, USA.



A bulldozer conversion from the Centaur tank.



Daimler Mk II 4x4 armoured car — ex WWII.



Leyland Hippo Mk II 10-ton 6x4 truck, ex-1944-45 era.

The most recent departure has been a Churchill for shipment to Canada although the initial, well-planned transport operation went sadly awry. It was in February 1981 that the Canadian trustees of the Field of Honor at Calgary, Alberta, contacted Pounds for a Churchill, preferably a 1942 'Dieppe' version. Tony Cornish could not oblige with the latter but a suitable late war model was selected and transport to Canada was arranged through the British High Commission in Ottawa via the Army. Although Pounds delivered the tank to Marchwood Military Port at Southampton without bother in October, there were some red faces when the Army found it could not shift it the remaining hundred yards or so and load it aboard the vessel and, as a consequence, the ship had to sail without it. The Canadians were naturally very upset over losing the winter months which they had set aside for restoration, and Tony therefore arranged with Peter Dirkan to restore the tank in England.

Although Pounds scrapyard was earmarked way back in 1973 for a feature in *After the Battle*, the long-running dispute with the local council led Pounds to adopt a low profile and shun publicity. Biding our time, it was not until 1978 that the opportunity arose to make a photographic survey of the yard but, even then, we were asked not to publish our photographs (except for those of Peter Gray's M-10) and to avoid giving the precise location. Happily there is now no objection to their publication — hence this story although the pictures we took have now taken on a somewhat archive quality. Over the last five years the removal of armour and the salvaging of other equipment and the construction of new concrete roads has transformed the scrapyard. Vast quantities of military equipment still remains to be seen although the 'graphic architecture of war's debris' is no longer apparent in 1982. The intrusion of

British Rail diesel cabs and the like marks the passing of time as a new generation's scrap replaces the old. We can only guess what secrets still remain beneath the piles of metal which mark probably the last armoured graveyard in the UK.

Since these photographs were taken in 1978, this Humber 4x4 scout car has been sold. When it was retrieved from the pile, some shell cases and a patch pocket from an army uniform containing maps were found inside.



Overleaf. Top left: Churchill Mk VII, now almost impossible to retrieve. Bottom left: Ex-Canadian Ford Carriers, Windsor Mk I*. Top right: Stuart Mk 6 gun-towing conversion. Bottom right: AEC 0857 armoured command vehicle, 6x6 Mk I, 1944-45, not for sale.







THE DEATH OF THE DUKE OF KENT

BY DAVID J. SMITH

On a lonely hillside in north-east Scotland a small stone cross stands to commemorate an air crash in 1942. Not an uncommon event in the Highlands, with its scores of wartime flying accidents, but this one resulted in the death of the first son of an English sovereign to be killed on active service for more than 500 years. There was also an element of mystery in the disaster which has never been resolved to this day.

The Duke of Kent, fourth son of King George V, was born in 1902 and as a young man had spent ten years in the Royal Navy. Described as being artistic and somewhat unconventional, his character was quite different from that of his brothers. The outbreak of war in 1939 came at a time when he was about to leave for Australia to take up the post of Governor-General. Feeling that he might be more useful to the war effort if he remained in England, the Duke put in a spell at the Admiralty on intelligence duties. Transferring to the Royal Air Force, he gave up his honorary rank of Air Vice-Marshal at his own request so that he could fill a Group Captain post in the newly-formed Welfare Branch.

Being sensitive enough to realise that a member of the Royal Family could not tour RAF stations without vast amounts of 'bull' interfering with day-to-day operations, he would arrive without ceremony, unannounced, and sometimes even unrecognised, at the wheel of his own car. He encouraged both air and ground crews to suggest ways in which their well-being could be improved.

In 1941, he flew to Canada to see at first hand the Empire Air Training Scheme, becoming the only member of the Royal



Top: Group Captain HRH The Duke of Kent talks to an Australian Sergeant Pilot of No. 601 'County of London' squadron (IWM). *Above:* Whilst visiting a Canadian Military Hospital in April 1942, the Duke had a cheery word with Sergeant J. Cook of Montreal (Public Archives of Canada).

Family to cross the Atlantic both ways in a bomber.

In the course of his duties, he must have visited almost all of the hundreds of RAF stations scattered throughout Britain. Examples include Hawarden on September 24, 1940, Aldergrove and Sydenham on October 21, 1940, Baginton on February 17, 1941, Sumburgh on May 9, Wick on May 11, Bobbington on October 6, and St. Angelo on November 25 — all in 1941. All this travelling must have been very confusing as he got the name of the station wrong at Hawarden whilst giving a talk to the airmen. Needless to say, no-one was tactless enough to point this out!

What was to prove his last assignment was a welfare tour of Iceland in August 1942. A Sunderland aircraft was provided by No. 228 Squadron, then based at RAF Oban, an experienced crew being requested for a 'special duty' with the squadron commander as a supernumerary crew-member.

At 3.35 p.m. on August 23, 1942, Sunderland W4026, code letter 'M-Mother', left Oban for a short positioning flight to Invergordon. This flying boat base on the Cromarty Firth had been chosen because it was more easily accessible by rail from London. It had been an operational station early in the war but, as the main U-boat activity switched to the north-west approaches, it reverted to a training role for No. 4 (Coastal) Operational Training Unit. On February 10, 1943 it was renamed RAF Alness after the site of the main camp, where only the concrete floors of the nissen huts can be seen today.

The crew selected for the trip were led by Flight Lieutenant Frank Goyen, a 25-year-old Australian from Victoria who had amassed nearly 1,000 operational hours on ocean patrols. His regular crew totalled nine, all equally experienced and competent. In addition, as noted above, the Australian squadron commander, Wing Commander J. L. Moseley, was also on board.

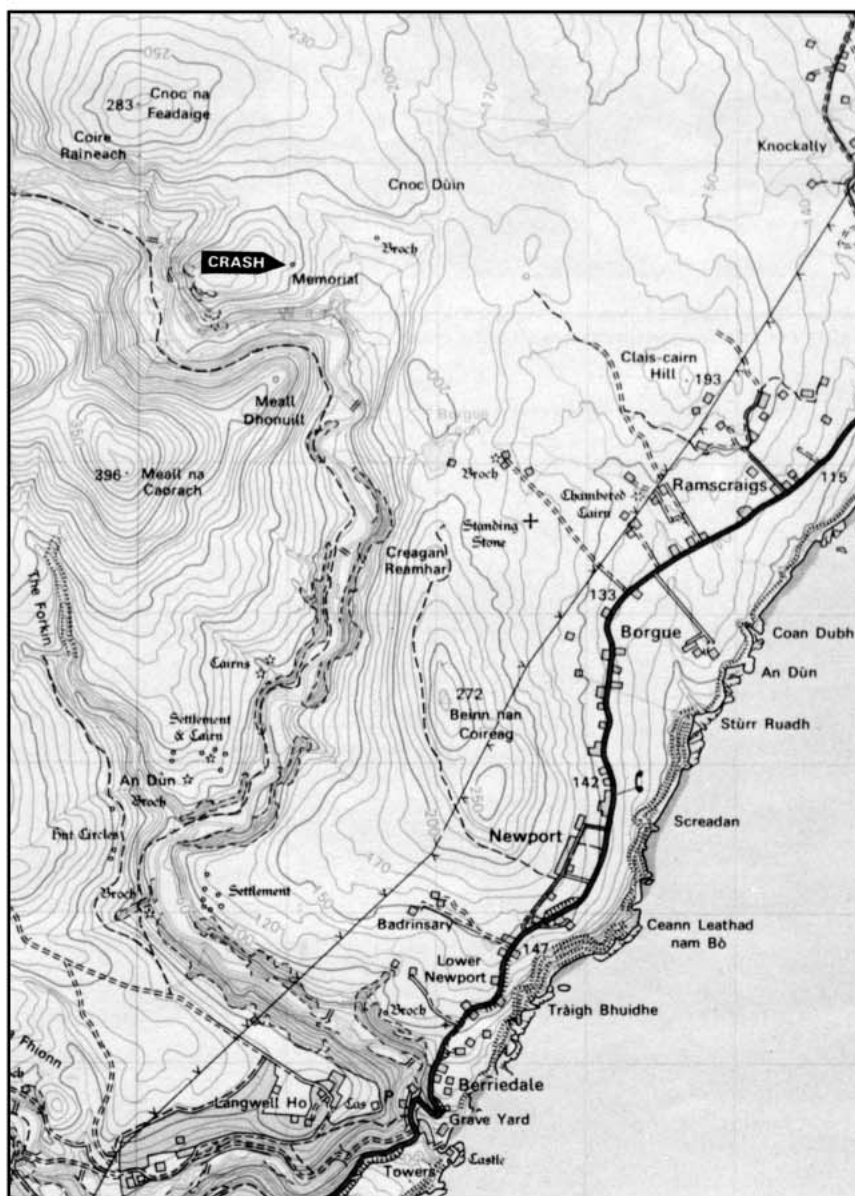
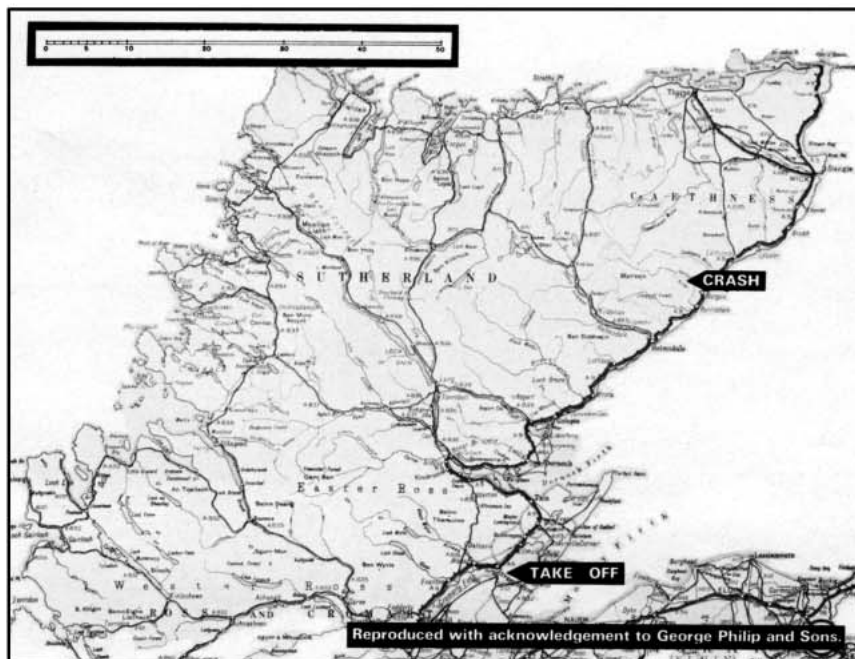
On the evening of August 24, when the Duke of Kent and his party arrived at Invergordon, the crew found out who their passengers were to be. The following day the weather was poor but was not deemed bad enough to postpone the flight. The Cromarty Firth was fairly clear with a cloud base of about 800 feet and the en route forecast was for an improvement.

The 900-mile flight to Iceland would take about seven hours and the Sunderland carried its full twelve hours' fuel in case deteriorating weather at its destination forced a return to Scotland. There were fifteen persons on board and depth-charges were carried as well. This was standard practice on transit flights should an enemy submarine be sighted.

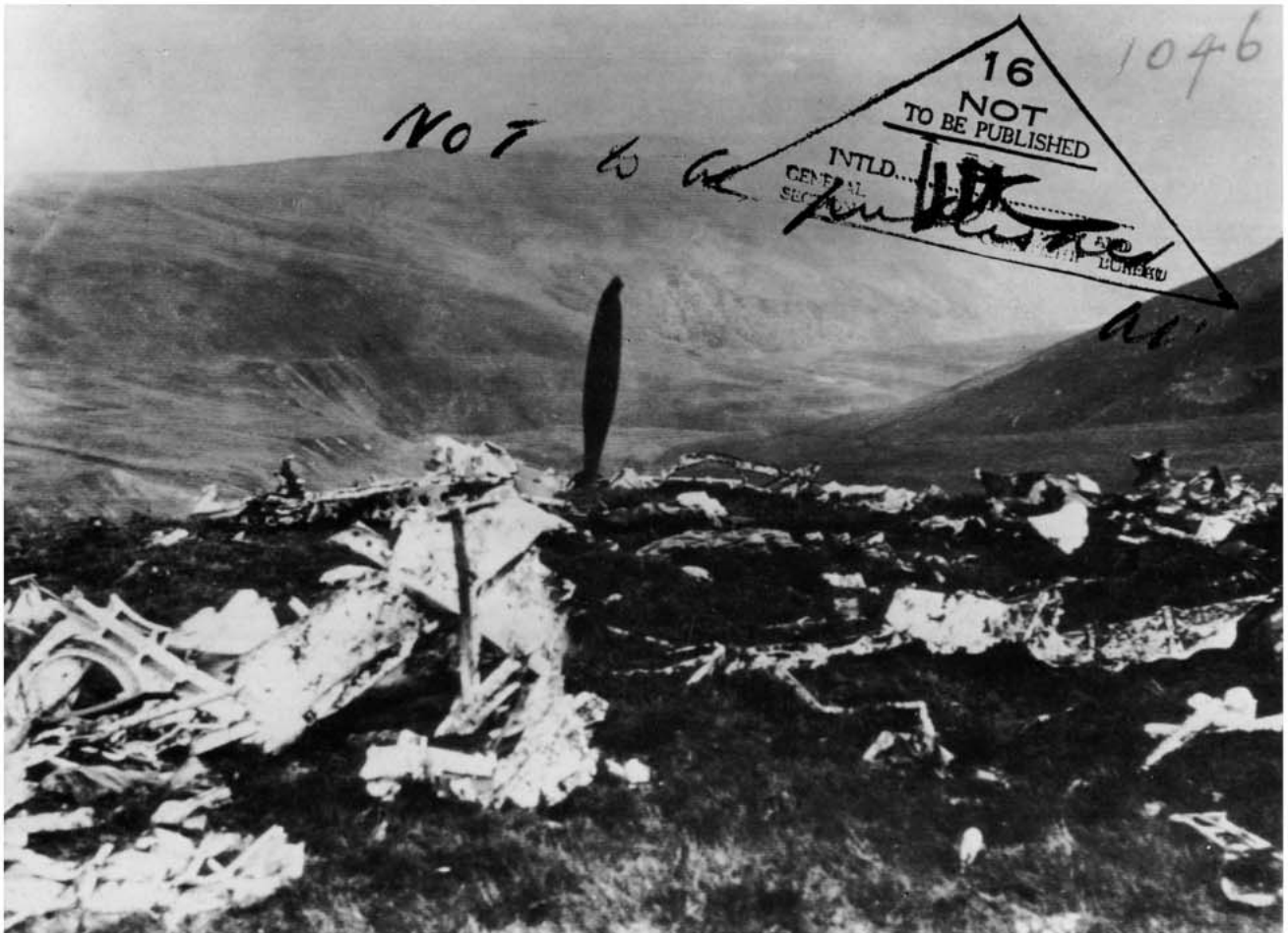
The aircraft lifted off from the Firth at 1.10 p.m. and set course over the open sea. Flight Lieutenant Goyen had been briefed to follow the coastline in a north-easterly direction for eighty-five miles, keeping out to sea, and turning through the Pentland Firth with John O'Groats on the port beam. The more obvious direct route across Sutherland was out of the question because of the poor rate of climb of the heavily-loaded aircraft and the high ground which rose up to 3,000 feet in places. Just past the Dornoch Firth, the cloud base began to lower so some height was lost to maintain visual contact with the coastline. From this point things began to go very wrong.

On a hillside just inland from the village of Berriedale a farmer, David Morrison, and his son Hugh, were rounding up their sheep. Suddenly, they heard the sound of an aircraft but could not see it as it passed overhead in the mist. Then came the shock of a double impact and the engine noise stopped abruptly.

The flying boat had just cleared the summit of a 900-foot hill known locally as Eagle's Rock. A deep, narrow valley separated it from the next rise and down-draughts probably



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Above: This Daily Sketch photograph was censored by the Ministry of Information three days after the crash.

Below: David Smith comments that one must set out for the site well equipped — it is easy to get lost if the mist descends.





sucked the Sunderland too low to clear this. It disintegrated into the heather and all but one on board were killed instantly.

The shepherds could only guess where the point of impact lay so young Hugh Morrison ran downhill to the stony track where he had left his motorcycle. Racing to Berriedale, he alerted the police, a local doctor, estate workers and crofters. This was in the days before the RAF Mountain Rescue Service was formed so the volunteer searchers scoured the high ground until the thick mist and approaching darkness forced them to give up.

The search was resumed next morning and at about mid-day glinting pieces of metal were sighted near Eagle's Rock where they found the Sunderland strewn in thousands of fragments all over the moor. It was assumed at first that there were no survivors but, miraculously, Sergeant Andrew Jack, the tail gunner, was still alive. As the aircraft had struck the ground, the tail section had been severed and Jack was somehow spared from death, though badly burned and injured. When he recovered consciousness he had searched for survivors and, finding none, had made his slow and painful way across the moors hoping to reach habitation. With nightfall he bedded down in the bracken and resumed his wanderings at daybreak. He must have been staggering deeper and deeper into desolate country because it was late in the afternoon before he found a cottage and safety.

Meanwhile, at the scene of the crash, the local doctor had recognised the Duke of Kent amongst the victims. The Duke's watch had stopped thirty-two minutes after take off. The news soon filtered through to the Press but wartime censorship ensured that only a low-key account was published.

The spectre of high ground lurked at the back of every pilot's mind. The importance of safety height was drilled into him from the beginning of his training and yet an experienced captain, apparently with the support of his CO, deviated from his route straight into the hills. The Court of Enquiry failed to find any explanation, the self-evident conclusion being that the accident occurred because the aircraft was flown on a track other than that indicated in the flight plan given to the pilot and at too low an altitude to clear the rising ground on the track. The opinion was expressed that the responsibility for the mistake in airmanship lay with the captain. Until more enlightened times, this verdict of 'pilot error' was a common one when no one lived to tell the tale. The only other published finding was that an examination of the propellers had shown that all four engines were under power on impact, which inferred that there was nothing wrong with the aircraft.

The crash location is now marked with a memorial. Access from the A9 is via a track (ask permission at the farm) and then on foot for one and a half miles.



Over the years there have been several attempts to explain what misled the crew so disastrously. The most unlikely was that they were lured to destruction by German radio operators sending fake messages, the object being to lower British morale. Simulating radio beacons was a British-pioneered device but it was not until much later in the war that the enemy began to practice such deceptions themselves in order to lead astray aircraft on the trans-Atlantic ferry routes. An *outbound* flight would obviously not require homing bearings and any back-bearings for position fixes would be treated with caution.

Another theory was that 'magnetic rocks' affected the compass. However, there is no geological evidence to support this and, in any case, it is a common local 'explanation' for crashes in many other parts of the country. Since the pilot would fly by his gyro direction indicator and reset it with the compass at regular intervals, any significant difference between the two would probably go unnoticed if it was only momentary.

An examination of the Operations Record Books for the nearest RAF stations to the crash — Tain, Evanton, Wick and Invergordon itself — reveals no amplifying detail, the first three not even recording the accident. The weather at RAF Wick, closest to the site, on August 25 was described as: 'Cloudy, occasional drizzle, low stratus creeping in from the north and spreading in from the south during the morning. 8/10 to 10/10 at 1,000 to 2,000 feet falling during afternoon to 400-800 feet and later to 300 feet and less. Visibility ten to twenty miles at first deteriorating to one to three miles in stratus. Wind ESE 10/20 knots.' Herein lies another possible cause: the easterly wind which may have drifted the aircraft in towards the coastline as the landmass continuously extended eastwards.

To No. 63 Maintenance Unit at Inverness, the unit responsible for the salvage of crashed aircraft in the north of Scotland, went the task of clearing the debris. The MU's ORB reports: 'Salvage of Sunderland W4026, Duke of Kent's aircraft. Commanding Officer of the unit, Squadron Leader D. A. Harrison, personally visited the site and made arrangements for the wreckage to be completely cleared and all traces of the accident to be removed. Salvage operations were completed on September 16, 1942.'

This is in direct contrast to several other crash sites in the area which were partially cleared and left with an untidy collection of scattered metal, some half-buried. On Scaraben, the long ridge which rises just to the west of Eagle's Rock, four aircraft have come to grief over the years. They were Whitley P5070 of No. 612 Squadron, Wick, on May 1, 1941; Anson DJ178 of No. 20 OTU, Lossiemouth on August 18, 1942; an unidentified Barracuda in December 1944, and Canberra WT531 of No. 80 Squadron which crashed on February 2, 1966 whilst flying from Bruggen in Germany to Lossiemouth.

A few miles down the coast on the moors behind Helmsdale are the partly-buried remnants of Liberator BZ724 of No. 59 Squadron. Out on an anti-submarine patrol from Northern Ireland, she was diverting to RAF Tain because of bad weather. Not far away are the remains of another Sunderland, DP197 of No. 4 OTU, Alness. On August 15, 1944, she was recalled to base in deteriorating weather and failed to clear the high ground. All fifteen on board were killed, their only memorial being a twisted propeller and other debris.

My own theory on the cause of the Duke's crash was triggered whilst I was driving up the A9 road from the south past Berriedale and Dunbeath. Both villages are set in inlets and, from a few hundred feet as the coast road climbs and dips, both locations look very similar. I believe that the captain decided to



As well as the Duke of Kent, the memorial records the names of the others on board who died with him: Pilot Officer (Air Gunner) the Hon. C. V. Michael Strutt, J/15062, RCAF, No. 228 Squadron. Buried in Kingston-on-Soar (St. Wilfrid) Churchyard, Nottinghamshire. Flight Sergeant (Air Gunner) Edward James Hewerdine, Mentioned in Despatches, 566884, No. 228 Squadron. Buried in Grantham Cemetery, Lincolnshire, Section 21, Row F, Grave 13. Sergeant (Flight Engineer) Leonard Edward Sweett, (note this name is spelt incorrectly on the memorial) 570678, No. 228 Squadron. Buried in Looe Cemetery, Cornwall, Block A, Grave 17. Flight Sergeant Charles Norman Lewis, 517386, No. 228 Squadron. Buried in Letterston (St. Giles) Churchyard, Pembrokeshire. Flight Sergeant (Flight Mechanic/Air Gunner) William Royston Jones, 523047, No. 228 Squadron. Buried in Aberavon (St. Mary) Church Cemetery, Port Talbot, Glamorgan-shire, Row 32, right side, Grave 13. Lieutenant John Arthur Lowther, MVO, RNVR, HMS President. Buried in Campsea Ashe (or Campsey Ash), (St. John the Baptist) Churchyard, Suffolk. Sergeant (Wireless Operator/Air Gunner) Arthur Rowland Catt, 1252994, No. 228 Squadron. Buried in Enfield (Hertford Road) Cemetery, Middlesex, Section C, Consecrated Grave 7630. Pilot Officer (Observer) George Richard Saunders, 126975, No. 228 Squadron. Buried in Sheffield (Handsworth New) Cemetery, Yorkshire, Section A, Grave 352. LAC John Walter Hales, 927117, No. 228 Squadron. Buried in Ingham (Holy Trinity) Churchyard, Norfolk. Except for the above, the remainder of the crew were buried in Oban (Pennyfuir) Cemetery, Kilmore and Kilbride, Argyll. Sergeant (Wireless Operator/Air Gunner) Edward Francis Blacklock, 405467, RNZAF, No. 228 Squadron. Section I, Grave 22. Flight Lieutenant (Pilot) Frank McKenzie Goyen, 42057, No. 228 Squadron. Section I, Grave 29. Wing Commander (Pilot) Thomas Lawton Moseley, 33064, No. 228 Squadron. Section I, Grave 30. Flying Officer Sydney Wood Smith, 403961. Section I, Grave 21.



'cut the corner' across Caithness, thus saving more fuel for a possible diversion. Provided the aircraft did not turn on to the new track until passing abeam of Dunbeath, it would be clear of the high ground and could begin a gentle climb in cloud to allow for the low hills on the northern coast. Flying visual contact with the coast in poor visibility, perhaps the crew misidentified the correct turning point and changed course over Berriedale instead of Dunbeath, straight into the hills.

Of course, we shall never know for sure. Today, Jaguars and Hunters of the Royal Air Force constantly thunder past the remote crash site on low level training, and about 200 yards away is an ancient burial mound in which lies a warrior whose name is another mystery that this melancholy hill is unlikely ever to reveal.

It was the express wish of His Royal Highness George Duke of Kent that he be buried in the Royal Burial Ground at Frogmore. This private cemetery lies within the grounds of Windsor Castle, alongside the Royal Mausoleum, and, although Queen Elizabeth has already done so much in so many ways to permit the general public to see and enjoy as much as possible of those aspects of the Royal Family's way of life which are our national inheritance, there are nonetheless certain privacies which it is felt should be preserved. The Royal Burial ground has always been one of these.



**AFTER THE
BATTLE**

PRESERVATION



FORT VELSEN DISMANTLED

BY COLONEL A. P. DE JONG, RNLAf

Holland's leading role during the Middle Ages led to Amsterdam becoming the prosperous centre of a world trade network. In 1507 a need was felt to defend the capital against possible aggressors and a belt of fortifications was constructed — that at IJpensluis proving its worth by repelling two attacks by troops of Karel van Gelder. Over the years, the fortifications around Amsterdam were developed but by 1870 it was realised that the increase in the range of gunnery made the old defence line too close for comfort to avoid possible bombardment of the town itself. Therefore from 1870 to 1880 a new, wider defence zone around the city was established and the existence of the newly-built Noordzeecanal, as the main shipping connection between the city and the North Sea, required additional defence provisions: thus Fort Velsen was born.

Lying some ten miles west of Amsterdam, close to the canal near IJmuiden, the new fort was one of thirty-six constructed before the First World War, interconnected by defence dykes which enabled the surrounding land to be flooded to restrict the advance of an invader. At the same time, the introduction of new types of high-explosive artillery shells necessitated changes in the shape and strength of fortifications and Fort Velsen mounted a 15cm/L24 gun by Krupp-Gruson in an armoured cupola.

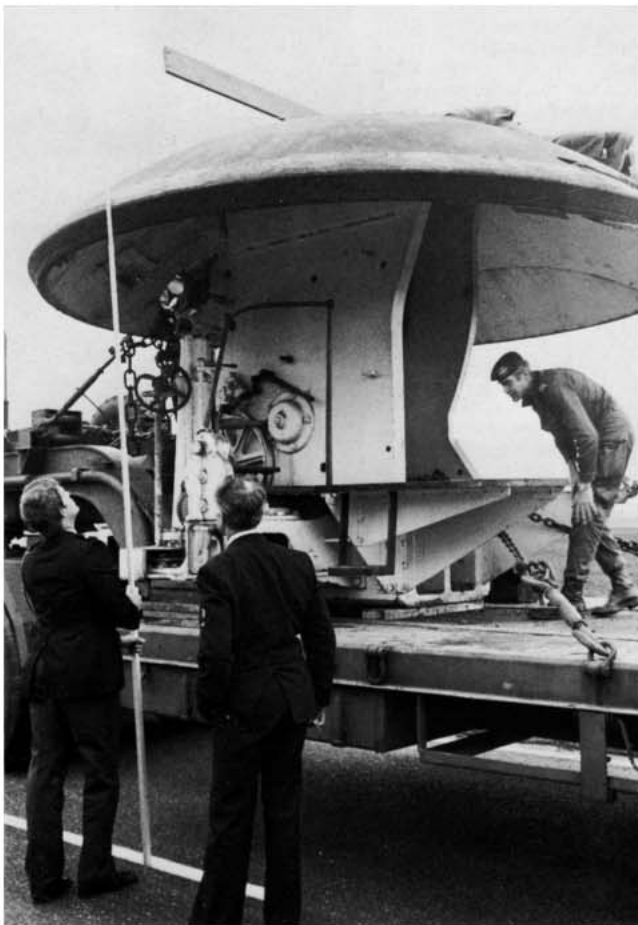
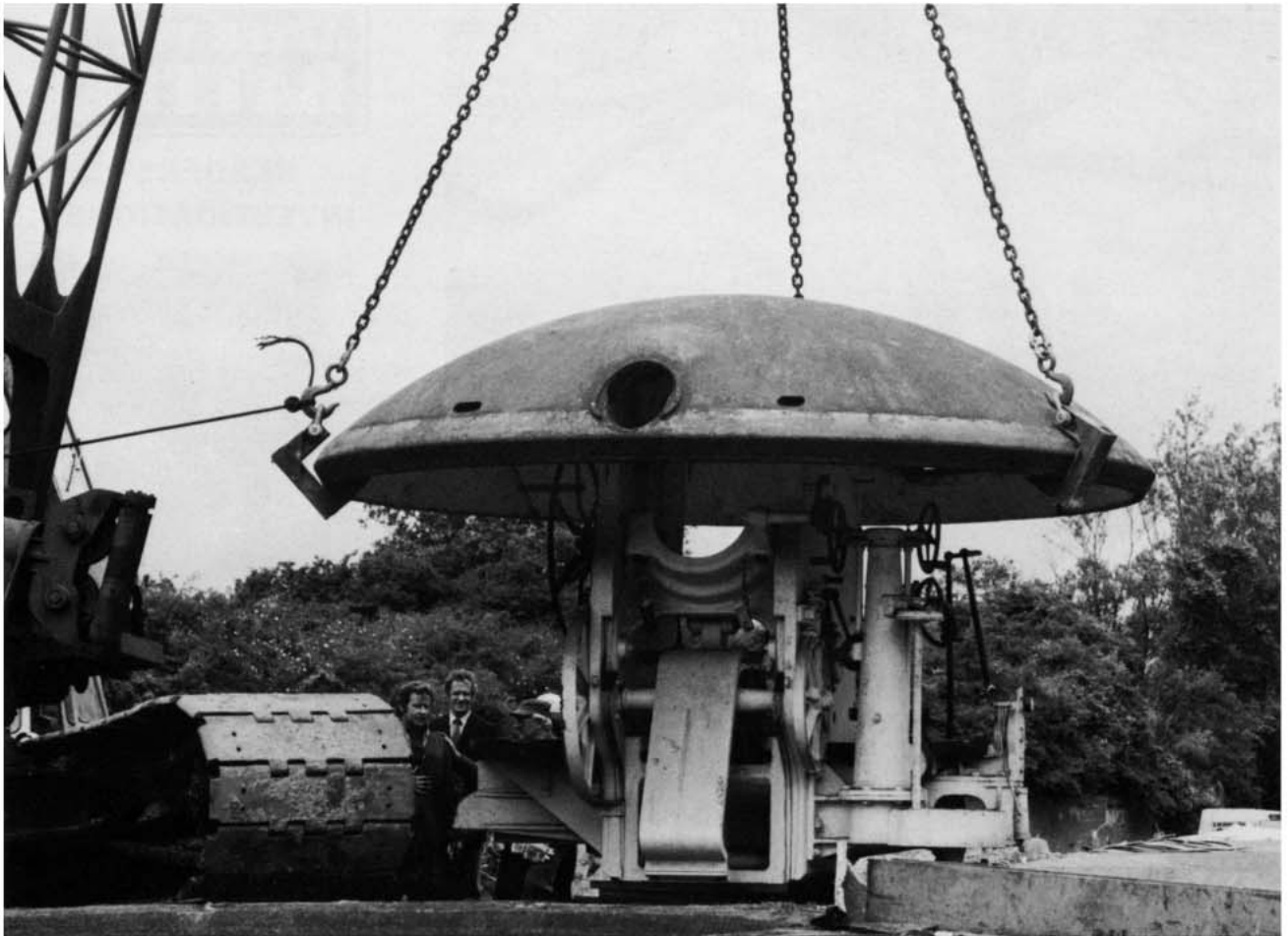
Following the Second World War, with its resulting technological advances in warfare, the Amsterdam defence line lost much of its significance and, consequently, the fortresses were no longer needed for their intended tasks although many were still retained by the military authorities for other uses such as depots. While the Velsen fortress remained in being until 1975, it was decided that there was no other practical purpose to which it could be put and it was offered for sale in 1980. However, the gun itself was not included as it was the only cannon of its type then remaining

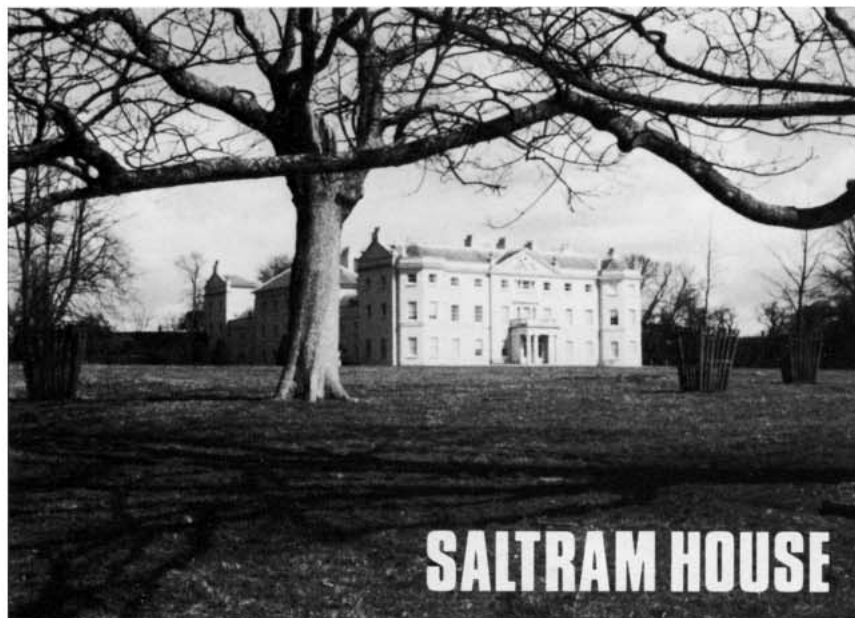


in the Netherlands and its value as an antique piece had been fully appreciated by the Netherlands Army Museum.

Considerable advance planning was necessary to organise the extraction of the huge 50-ton steel dome. Removal of armoured cupolas is not an everyday event these days

and many hours' work by army experts were necessary before the monster rose from its 80-year resting place. From there it was transported by road to 502 Army Workshops at Alphen-aan-den-Rijn, its temporary location, pending the preparation of a permanent home in an appropriate museum.





AFTER THE BATTLE

READERS' INVESTIGATIONS

Investigation No. 2

BY LEONARD A. FLOOD

Saltram, at Plympton near Plymouth in south-west England, is a country estate dating from the sixteenth century. It was developed in the latter part of the eighteenth century by the Parker family, who later became the Earls of Morley. Today it is the property of the National Trust, whose function it is to preserve and maintain the house, gardens, and estate in much the same way as that of its previous owners.

One interesting aspect about the more recent, almost unrecorded, history of the estate, is that there are names, dates, and initials carved in the smooth bark of some of the beech trees in parts of the wooded areas in the grounds. Firstly, the names are certainly not of the district, and some are not even native of this country, such as: Schott, McCalips, Earl R. Lawton, Elza, Ray Mandrell, Buffalo, etc. However, the accompanying dates which appear on some of the trees — 44, 1944, and more specifically June 1944 — give us an indication of the time period in which the carvings were made.

After I had made further enquiries I discovered that at the time of D-Day the estate was used as a staging camp for American troops and their equipment. Hence the explanation for the thick concrete roads, covered in tarmac, which at first sight seem out of place on the estate, constructed to take

the weight of heavy trucks and artillery, and also the reason for the steel reinforcement of what was the single bridge over the railway line at the bottom of Cot Hill which leads to the Saltram estate.

In my attempts to specifically identify the American troops who came this way in 1944 to take part in the invasion of France, I made contact with the Department of the Army's Center of Military History in Washington, D.C. Colonel William F. Strobebridge of the Historical Services Division was able to inform me that both the 29th US Infantry and 4th US Infantry Divisions were stationed in the Plymouth area during the war. He also advised me of the names and addresses of the corresponding officials of the associations of both these Divisions. I wrote to both but only received a reply from Andrew McFadzean, past National Commander of the 29th Division Association who, after studying the records of his association, doubted that any of the names I quoted were members of his division. Not receiving a reply from the 4th Division may be due to a change of address, or other circumstances.

The men who cut their names and initials on these trees may well have intended the carvings to be a record of their presence. Unfortunately for some of them it may well have been their last. It certainly is surprising that they are still clearly legible after so many years and I think we should look on these tree carvings as a memento to a very important part of historical nostalgia, rather than an act of tree despoilment. Although little else remains of their passing at Saltram, these inscriptions by unknown fighting men remain an unusual, if not unique, 'living' memorial.





LONDON'S WARTIME HEADQUARTERS

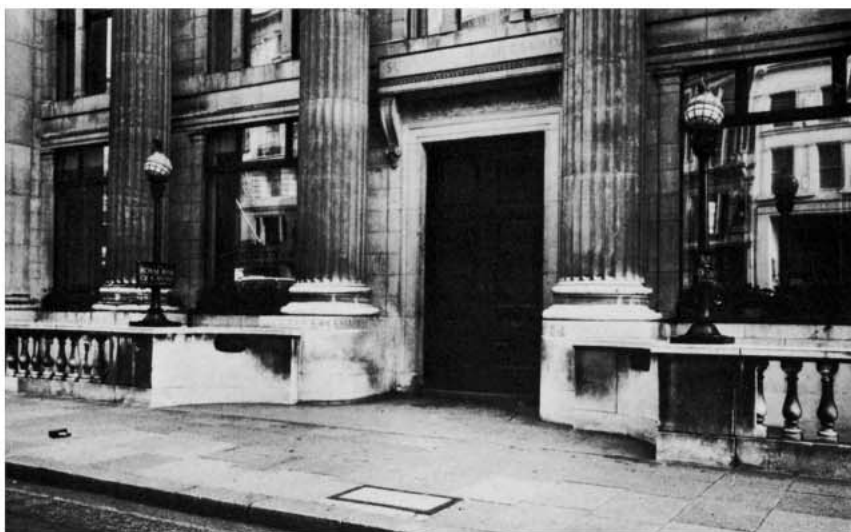
BY JOHN REED

On November 13, 1939, ten weeks after the outbreak of World War II, a detachment of Canadian servicemen under the command of Colonel P. J. Montague moved into what had been until a few days previously the offices of the Sun Life Assurance Company at No. 2 Cockspar Street, just off London's famous Trafalgar Square. They were the first officers and men to arrive at the newly established Canadian Military Headquarters in Great Britain, and their headquarters was the first of many Allied Headquarters to be established in the capital as the war ran its course.

The London that played host to the Commonwealth and Allied servicemen, and to the European governments-in-exile, was itself constantly under the threat of aerial attack. In September 1939, like most cities that had undergone extensive rebuilding during the inter-war years, it had a surplus of office accommodation, and the tensions of the preceding eighteen months had already prompted several major concerns to seek safety in the suburbs leaving more vacant space behind them. There were vacancies, too, amongst the expensive Mayfair, Kensington, and Belgravia apartment blocks, as well-to-do owners and tenants prudently decided to move away from the city centre and, as the tempo of war increased, so the process of voluntary evacuation gained momentum. Such buildings, together with hotels and the West End showrooms owned by the motor manufacturers — now totally committed to the war effort — were considered ideal as temporary military headquarters or government offices and, as Whitehall departments made their bids for extra office accommodation, the Ministry of Works moved swiftly to secure tenancies 'for the duration'.

In the summer of 1940 there was a fresh set of priorities. Within the span of a few weeks, the governments of Norway, Denmark, the Netherlands, Belgium, Luxembourg, and eventually France, were forced to capitulate as the full force of Hitler's blitzkrieg fell upon their ill-prepared countries. Despite the ensuing chaos, each was able to establish a nucleus of ministers in the United Kingdom, and to seek permission to establish an official

government-in-exile there to provide a rallying point for those of their subjects — military and civilian — who had managed to cross the Channel to freedom. With them came members of the Polish and Czechoslovakian exile governments and military commands that had been established on French soil



Lance Corporal Elwood Christenson of the Canadian Provost Corps on duty outside Canadian Military Headquarters, located in the offices of the Sun Life Assurance Company of Canada. The building is sandwiched between the Royal Bank of Canada and Canada House on Cockspar Street (Public Archives of Canada).



Left: Taken on October 19, 1942, Lance Bombardier G. McNabb and Gunner J. R. Blackburn man a 20mm Hispano on the roof of the Sun Life building (Public Archives of Canada). Above: No trace of the naval-type mounting can be seen today.

during the previous year. Suddenly, and quite unexpectedly, London — by now itself a frontline city — had become the centre of government for Free Europe.

Unfortunately few records of those hectic days have survived. At first, the exiles congregated at their respective embassies but, as their numbers grew, so their demands for more accommodation became more pressing. No list of the properties requisitioned to meet the influx remains on file, with the possible exception of the appropriate Government Property Registers which, although in the Public Record Office, are still firmly closed to public viewing. Wartime telephone directories understandably make no reference to the whereabouts of headquarters, and most other official directories have long since been destroyed. However, it has been possible to prepare details of government and HQ locations as at 1941-2 (by which time they had stabilised) and to provide a resume of their history.

In June 1940, the first priority had been to reassemble the remnants of the defeated armies, and the experiences of the survivors of the Netherlands Army, who had made their way across Belgium and France after the collapse of resistance in their homeland, were typical of those of thousands of escapees. By the end of the first week in June, they had



Above: Personnel of the Women's Royal Canadian Naval Service entering the Navy Office of Canada at King's House, No. 10 Haymarket, in April 1944 (Public Archives of Canada). Below: Now the offices of Burroughs Business Machines.



Stratton House Piccadilly wartime home of the exiled Dutch Government and parts of the Polish administration.





Left: Eaton Square, then as now the centre of Belgian interests in London. Right: Neville Chamberlain lived at No. 37 from 1923 to 1935; from 1940 it housed the Finance, Defence, Economics and Transport Ministries.

been reunited in south Wales, a motley assortment of infantrymen, artillerymen, military policemen, marines, and members of supporting arms, whose senior officer was incongruously from the Medical Corps. A move to the Midlands followed and, during July, despite misunderstandings of the sort that were bound to occur when Second Lieutenants of the Royal Netherlands Army wore badges of rank that were readily confused with those of Colonels in the British Army, the Dutchmen were assigned coast and airfield defence roles. By August, a formal Netherlands Military Mission had been established, and this in time evolved into the Anglo-Netherlands Liaison HQ.

Rebuilding the army, which had been described as a 'big mess' was a major task but, in the meantime, Queen Wilhelmina and members of her government had also arrived in England. The exiled government was eventually established at **Stratton House**, a massive (by 1930's standards) office block overlooking Green Park, but its early days were far from harmonious. Premier de Geer was by no means confident in an Allied victory and publicly declared his wish to negotiate with Berlin. Replaced by his Minister of Justice, Professor Pieter S. Gerbrandy, de Geer was relegated to an obscure post in the colonies, and eventually re-entered Holland as a Nazi collaborator. However, by late 1942, the Stratton House government had expanded to include ministries that were planning the rebuilding of their homeland, as well as those that were concerned with the conduct of the war effort and the administration of the colonial territories. The full list of 1942 ministers is set out in Table 1.

Thus Piccadilly, and Stratton House in particular, became the focal point for the hopes of the exiled Dutchmen, and there was even a Dutch Club *De Nederlandsche Vereeniging* at **31 Sackville Street** to serve as a social centre for them. Only the Royal Netherlands Navy and the Mercantile Marine were not represented at Stratton House. The former, commanded by Vice Admiral J. T. Furstner, established its HQ in Mayfair's **North Row**, whilst commercial shipping interests were assigned offices in the City of London, with a Shipping and Trading Section at **5-6 Crosby Street, Bishopsgate**, and a Short Sea and Coastal Section at **37-38 Fenchurch Street**.

Belgravia's elegant **Eaton Square** became home for the duration for the Belgians. Unlike the Netherlands, who had been assigned part of an office complex, the Belgians were able to move into a number of spacious houses

TABLE 1 — NETHERLANDS GOVERNMENT IN EXILE 1942		
<i>Location</i>	<i>Ministry</i>	<i>Minister</i>
Stratton House, Piccadilly, W1	Premier	Professor P. S. Gerbrandy
	Minister of Justice	
	Ministry of Defence	Major-General G. B. Noothoven van Goor
	Netherlands Legion	
	Foreign Ministry	Dr. E. N. van Kleffens
	Colonial Ministry	
	Financial Affairs	J. I. M. Weller
	Economic Affairs	
	Post-war Reconstruction	Dr. M. P. L. Steenberghe
	Social Affairs	
	Agricultural/Fisheries	J. van den Tempel
	Education	A. A. van Rhijn
		G. Bolkenstien

in the immediate vicinity of their long-established embassy. The Ministries of Finance, Defence, and Economics and Transport were installed at **No. 37** — the home of former Premier Neville Chamberlain between 1923 and 1935 — but Premier Hubert Pierlot and his Cabinet offices and remaining ministries were accommodated in adjoining buildings between **Nos. 103 and 118**. Amongst those who had their office there was 41-year-old Paul Henri Spaak, at that time Foreign Minister, but later to become one of the founding fathers of the European Community.

The Norwegian Premier, Johan Nygaardsvold, had already held office for five years when his country was invaded in April 1940. The German campaign lasted for nearly two months during which time Nygaardsvold's government made frequent moves to escape capture, and somehow managed to remain united and firmly in office despite the Nazis having installed the arch-traitor Vidkun Quisling as administrator of a puppet regime.

Eventually the government was re-united with the battered remnants of its Army and Navy in Scotland, and scored a notable success in extricating its country's gold reserves and the greater part of its merchant fleet. A glance through convoy schedules of the years that followed will reveal just how big a contribution these merchantmen made to the Allied cause, and a special Trade and Shipping Administration was formed to operate them from **144 Leadenhall Street** in the heart of the City's shipping market. The Ministry of Defence was located in **Norway House, Cockspur Street** — opposite the Canadian Forces HQ — a building that today houses the London offices of the Norwegian State Railways and a Norwegian Club, but the main government offices were further west at Knightsbridge's **Kingston House**. The full list of ministers and the addresses of other Norwegian government offices as at mid-1942 is given in Table 3, and it is worth recording that the Foreign Minister at Kingston House was Trygve Lie, later to achieve fame as the

TABLE 2 — BELGIAN GOVERNMENT IN EXILE 1942		
<i>Location</i>	<i>Ministry</i>	<i>Minister</i>
103 Eaton Square, SW1	Embassy	P. H. Spaak
105 Eaton Square, SW1	Foreign Affairs	
106 Eaton Square, SW1	Bureau of Information and Documentation	
115 Eaton Square, SW1	Labour	Hubert Pierlot
117 Eaton Square, SW1	Cabinet Office	
	Refugee Bureau	Albert de Vleescharvieuw
	Justice	
118 Eaton Square, SW1	Colonial Affairs	Camille Gutt
37 Eaton Square, SW1	Finance	
	Economic Affairs/Transport	
	Defence	



Kingston House at Prince's Gate, HQ of the Norwegians — now a complex block of flats.

first Secretary-General of the United Nations Organisation, which held its first meeting at the Central Hall, Westminster.

No. 4 Carlton House Gardens, set in an elegant square conveniently close to Whitehall, and at the very hub of the capital's diplomatic quarter, housed the Free French Government, or more precisely the Council of Defence of the Free French Empire, presided over by General Charles de Gaulle. We perhaps tend to think of the Free French Administration as being solely concerned with the affairs of France and her North African territories, but there were at Carlton House Gardens the offices and staffs of the Governor Generals of Indo-China, French East Africa and the Cameroons, as well as those of the purely domestic ministries. The Carlton House Gardens complex was possibly the most self-contained — and politically isolationist — of the wartime HQs.

In contrast, the Polish administration was dispersed amongst numerous offices throughout Central London. Poland had

TABLE 3 — NORWEGIAN GOVERNMENT IN EXILE 1942

<i>Location</i>	<i>Ministry</i>	<i>Minister</i>
Kingston House, Knightsbridge	Main Government Offices	Prime Minister Johan Nygaardsvold
	Foreign Affairs	Trygve Lie
	Agriculture	Hans Ystgaard
	Education	Nils Hjeltnett
	Finance	Oscar Torp
	Social Work	S. Stostad
	Trade	Terje Wald
	Information Office	
	Broadcasting	
	Consulate General (Shipping)	
Norway House, 21 Cockspur St., W1 Tavistock Square, W1	Defence	Colonel Ljungberg
	Registration Office	
	Savings Fund	
144 Leadenhall Street, EC3	Shipping/Trade Mission	Arne Sunde
26 King Street, EC2	Consulate General	
10 Palace Green, W8	Norwegian Legation	

enjoyed only twenty-one years of independence when its heroic fight for survival ended between the jaws of the unlikely Russo-German partnership in September 1939. Many of those who held office in the government that eventually came to England by way of France — where the Polish forces acted as rearguard for the vanquished French Army — were like Premier Sikorski and his deputy, heroes of the revolution that had secured independence, and who brought with them a fiercely independent love of their homeland. Their main government offices were directed to **Stratton House**, where Sikorski and his Ministers of Finance and Interior established their departments, and offices were provided for President Wladislaw Rackiewicz at **Fountain House**, a modern apartment block in Mayfair's Park Street, about half-a-mile from the Piccadilly building.

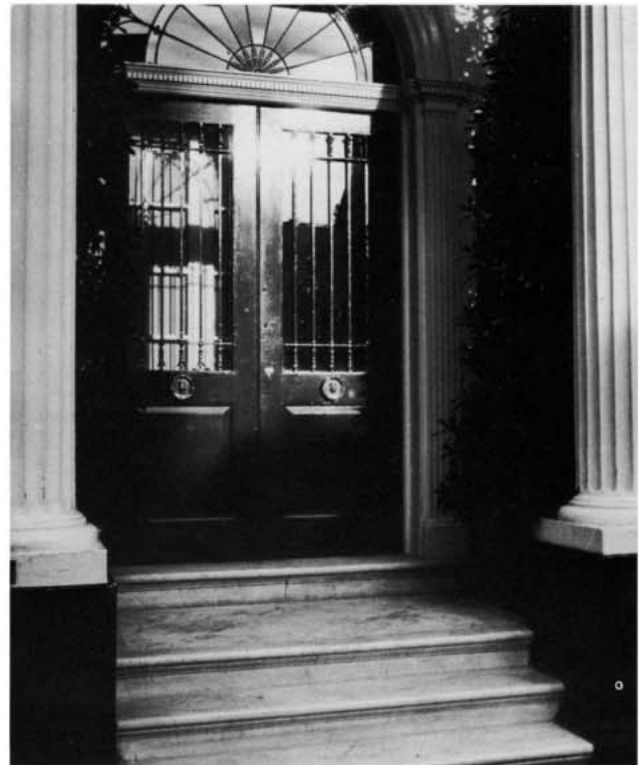
The Polish Ministry of Foreign Affairs, overseen in 1942 by August Zaleski, was established at **No. 7 Queens Gate, Kensington** in an area that has since the war years played host to many Polish emigres, and the Commander-in-Chief of the Polish Forces and his staff were allocated the 130-room **Hotel Rubens** in **Buckingham Palace Gate** as their



Free French Headquarters — No. 4 Carlton Gardens — an imposing property rebuilt in 1933 backing on to the Mall. Now occupied by a number of commercial concerns.



Before the war the French embassy was located at No. 58 Knightsbridge (also the present location) but this was closed from June 1940. There was no diplomatic representation until November 10, 1941 when M. Garreau took office at a temporary location in Lowndes Place. From September 11, 1943, M. Vienot held the reins followed by M. Massigli who represented France as ambassador from September 11, 1944 until February 1, 1955. Here Churchill visits Lowndes House on May 9, 1945 (IWM).



HQ. Members of the Social Welfare and Works Ministry, who like so many of their countrymen were planning the future of a country that they could only hope would not find itself in thrall to the Russians at the war's end, were accommodated at 15 Stratton Street, a building only a stone's throw from Stratton House, but a number of buildings near to the Embassy in Portland Place were necessarily requisitioned to house the Justice Department. Vice-Premier General Kasimir Sosnkowski, a former Inspector-General of the Polish Army who had reached freedom via Hungary and France, also had his living quarters in **Portland Place**, at No. 47A next to the embassy and formerly the home of another soldier Earl Roberts — hero of the Afghan and South African Wars.

Sikorski lived at No. 45 Upper Grosvenor Street — surely one of the few buildings in London still to bear a faded wartime 'S' Sign denoting a basement air raid shelter — but by 1942 the area around Grosvenor Square was rapidly passing into a new and far brasher tenancy. The Americans had arrived, the transatlantic war machine was in motion and, within six months of the attack on Pearl Harbor, Londoners had become accustomed

TABLE 4 — POLISH GOVERNMENT IN EXILE 1942

<i>Location</i>	<i>Ministry</i>	<i>Minister</i>
<i>Fountain House, Park Street, W1</i>	Presidential Office	Wladyslaw Rackiewicz
<i>Stratton House, Piccadilly, W1</i>	Prime Minister	Wladyslaw Sikorski (residence 45 Upper Grosvenor Street, W1)
	Interior	Professor Stanislaw Kot
	Finance	Henryk Strasburge
	Documentation Bureau	Professor Stanislaw Stronski
	Foreign Affairs	
70 Queens Gate, SW7		
Hotel Rubens,		
Buckingham Palace Gate, SW1	GOC Army	General Tadeusz Klimecki
15 Stratton Street, W1	Social Welfare and Works	Jan Stanczyk
15 Grosvenor Street, W1	National Education	General Josef Haller
47 Portland Place, W1	Embassy	Count Edward Raczyński
47a Portland Place, W1	Deputy Premier	General Kasimir Sosnkowski
67 Portland Place, W1	Consulate	Dr. Karol Poznanski
71 Portland Place, W1	Supreme Chamber of State Control	Prof. Tadeusz Tomaszewski
73 Portland Place, W1	Justice	
2 Devonia Road, Islington, N1	Bishop to the Polish Forces	Josef Gawcina

Below left: The fashionable Rubens Hotel — former Polish military HQ. Below right: The defender of Ladysmith, Sir George White, stands sentinel over the wartime Embassy building at No. 47 Portland Place — now that of the Polish People's Republic.





Left: Although this might easily be captioned: 'The Stars and Stripes go up over London', in actual fact they are being lowered to half-mast in mourning for the death of President Franklin Roosevelt on April 12, 1945. The location is the rooftop of Selfridges store in Oxford Street, parts of which were taken over by the US Quartermaster Corps (US Signal Corps). **Right:** A security man salutes the Union Jack against a changed skyline.



to the newcomers — even if there was some resentment at the number of buildings that they occupied at a time when three years of war had created a serious housing shortage.

The first US servicemen to arrive in Britain had been the four thousand members of General Russell P. Hartle's 34th Division who had disembarked in Northern Ireland on January 15, 1942 (see *After the Battle No. 34*). Within three months they had been joined by another 20,000 who arrived on seventeen troopships as part of the build-up for OPERATION BOLERO, a highly controversial plan to establish a lodgement in occupied Europe during 1943. BOLERO would have required 100,000-120,000 men to have been disembarked in the United Kingdom before September 1942 but, in June of that year, Major General Dwight D. Eisenhower was appointed to the command of US Forces in Europe after the existing local commanders had been found to have a confused picture of their war aims. Changes necessarily came rapidly with the formation of a unified ETOUSA command and a more rational build-up was commenced with particular emphasis being paid to the business of establishing the comprehensive administrative and command structures that would be required to support the 1944 successor to BOLERO.

Eisenhower had at first been reluctant to build up his HQ in London but eventually he accepted the benefits to his staff of being well placed to liaise with their British counterparts and elected to concentrate his administrative machinery around the US Embassy in Grosvenor Square. There were several attempts to decentralise parts of the headquarters, but they were far from successful. The first home of the all-important Quartermaster Corps was at No. 1 Great Cumberland Place, an office block on a Marble Arch corner site but, within a month of Eisenhower's arrival, the 135 officers and their staffs were moved to Benhall Farm at

Cheltenham in rural Gloucestershire in order to be nearer to the geographical centre of their developing chain of storage depots. Communications suffered badly, and in August the QM Corps moved back to London and took over a new suite of offices in an annexe of Oxford Street's celebrated Selfridges department store before finally moving to Nos. 41-42-43 Grosvenor Square.

Such frequent changes of location were commonplace and, with the London garrison ultimately reaching a strength of more than 18,000, it is extremely difficult to chart the changes in occupancy of the hundreds of buildings assigned to the US Army during the period 1942-45. However, we can be precise

about the disposition of Headquarters staffs at the war's end, and can identify the principal moves as the pre-D-Day build up progressed.

Eisenhower's COSSAC (Allied Chiefs-of-Staff) headquarters were at first located at Norfolk House, discreetly situated in a corner of St. James Square, nearer to Whitehall than to Grosvenor Square, and it was here that the plans for the North African landings and preliminary stages of those for the Normandy operation were prepared. Norfolk House was, however, a combined HQ and the purely American aspects of the operations were administered from the Headquarters of the European Theater of Operations at No. 20 Grosvenor Square.



Now private flats — then the headquarters of the American United Kingdom Base organisation — No. 47 Grosvenor Square.

Both headquarters expanded dramatically as the influx of troops was resumed in the autumn of 1943. In March 1944, SHAEF — the Supreme Headquarters of the Allied Expeditionary Forces — was formally established and, at Eisenhower's insistence, eventually moved away from the city centre to **Bushy Park at Teddington**, part of which was already occupied by the Headquarters of the United States Tactical Air Forces (see *After the Battle No. 22, page 8*). SHAEF's new home — codenamed **WIDEWING** — grew rapidly. The initial requirement had been for a hatted camp with 130,000 square feet of floor space to accommodate 2,830 officers and enlisted men but, with the arrival of the many supporting units that required a site near to the HQ, the camp was further expanded until by D-Day it housed nearly 7,000, and also operated a number of advanced posts at other locations in the Home Counties. By that time, SHAEF had developed its own specialised signals network, and maintained a communications centre at the north end of the deep shelter at **Goodge Street underground station**, operated jointly by the US 3118th Signal Service Battalion and the British 5th Headquarters Signals Regiment.

The US Signals battalion was just one part of a formidable organisation dedicated to the support of the invasion armies. To the Londoner — accustomed as he became to seeing jeeps, weapon carriers and black staff cars monopolising the city streets — there were many aspects of the US presence that seemed excessive, but the reality was that the administration of the 1,200,000 US servicemen, the stockpiling of stores and equipment, and the creation of the machinery to carry them into Europe, was in every sense a gigantic operation.

In addition to the various combat commands, there was, necessarily, a UK Base organisation — a springboard into Europe — and a Base Command to man its installations. Both organisations were centered around Grosvenor Square and although as the liberation of Europe got under way a certain amount of the complicated command machinery was lifted across the Channel, the 1945 address list reveals the extent of their tenancy. HQ UK Base was located at No. 47 **Grosvenor Square**, an imposing residential block that housed the Commanding General, his deputy, aides and Chief-of-Staff, as well as the 'A' and 'G' staff departments responsible for personnel, administration, training, and operations throughout the Base Organisation. Civilian personnel were administered by specialised sections based on



Grosvenor Square was laid out during the reign of George II and named after the famous English family of the same name who became marquesses and later dukes of Westminster. The square has been associated with the United States ever since John Adams became minister to Great Britain (later American President) and came to live at No. 9 in the north-east corner in 1785. The American embassy became a focal point of American administration and much of the property lining the square was incorporated into the military machine. In 1959, the Canadians, anxious to centralise their expanding governmental activities in London, paid £1,690,000 for the building on a 999-year lease at £200 per annum. Renamed **Macdonald House** after the first Canadian Prime Minister, the new Canadian Embassy opened on July 1, 1961, Canada House in Cockspur Street becoming more concerned, thereafter, with public affairs. *Above: Architectural impression by the designer, Rosario Candela, born in Sicily, and below Macdonald House in 1981.*



The main entrance in 1945 — careful examination reveals the repairs to the damaged marble pillar and step (IWM).



On April 18, 1982, 'Stars and Stripes' celebrated its fortieth birthday. It was in January 1942 that half-a-dozen soldiers from the 34th Infantry Division were brought together to create a newspaper 'by servicemen for servicemen'. First editions were weekly until November 2, 1942 when 'Stripes' became daily, printed on 'The Times' presses in Printing House Square. Initially it ran four or eight pages selling around seven cents and, before the war was finished, editions had been printed at twenty-five different locations. Commandeering of facilities overseas enabled production to continue as the troops advanced and the first plant on German soil was set up in a brewery at Pfungstadt. Later the presses of the Nazi newspaper, 'Der Sturmer' were used at Altdorf. Today the paper is produced at a modern plant on the ex-Luftwaffe training airfield at Darmstadt. Photo shows L-R Tom Bernard, Mark Senigo, Bud Hutton, Bob Moora and Ben Price in their makeshift newsroom at 'The Times'.

**TABLE 5 — ADDRESS LIST HQ UNITED KINGDOM BASE — US ARMY
AUGUST 1945**

<i>Office</i>	<i>Location</i>	<i>Remarks</i>
HQUKB	47 Grosvenor Square	Commanding General and Staff Reception and Chief Clerk
HQUKB Visitors' Bureau	44 Grosvenor Square	
HQUKB Staff	47 Grosvenor Square	Censorship Branch only
	20 Grosvenor Square	
	John Lewis Building, Oxford Street	Room 102 Counter Intelligence Publications Branch Civilian Personnel Sections Basement
	66 South Audley Street	
	500 Oxford Street	
Army Courier Service	47 Grosvenor Square	Sorting Office
Army Exchange Service	Cavendish Square	
Barber's Shop (Officers)	20 Grosvenor Square	
Censor Base No. 2	68 Grosvenor Street	Chief Clerk only
	175 Oxford Street	
	60 Grosvenor Street	
Censor Base No. 3	60 Grosvenor Street	
Censor Base No. 6	69 Grosvenor Street	
	Cavendish Square	
Central Disbursing Office	26 Grosvenor Square	
Chemical Warfare Section	Selfridge Building	
Claims Section	47 Grosvenor Square	
Control Division	Selfridge Building, Oxford Street	
Engineer Section	Cavendish Square	
	Cavendish Square	
Finance Office	Cavendish Square	
Fiscal Office	Cavendish Square	
Reciprocal Aid Division	Cavendish Square	
Central Purchasing Agency	9 Stanhope Gate, W1	
Historical Section	44 Grosvenor Square	
Information/Education	20 Cavendish Square	
Inspector General	20 Grosvenor Square	
Judge Advocate	20 Grosvenor Square	
British Liaison Office	47 Grosvenor Square	
QM Sales Store	479 Oxford Street	Medical Records Division US Typhus Division
Medical Section	9 North Audley Street	
	14 Duke Street	
	7 Grosvenor Square	
Military Labor Service	40 Upper Brook Street	
Motor Pool UK Base	Park West Garage, Edgware Road	
Ordnance	38 Grosvenor Square	
Provost Marshal	20 Grosvenor Square	
Public Relations Office	28 Grosvenor Square	
Quartermaster Section	43 Grosvenor Square	
	41 Grosvenor Square	
	42 Grosvenor Square	
	40 Grosvenor Square	
Sea Coast Artillery	20 Grosvenor Square	
Evaluation Board	14 Duke Street	
Signal Service	28-31 Davies Street	Signal Intelligence Section
	9 Stanhope Gate	
	59 Weymouth Street	
	9 North Audley Street	
Special Services	Cavendish Square	
Stars and Stripes Newspaper	Times Building, Printing House Square	
Base Transportation	14 Duke Street	
Yank Magazine	16-17 Old Bailey	

the first floor of No. 500 Oxford Street, and the Command's Printing and Publications Department (a part of the main HQ) was located at No. 69 South Audley Street (in premises which today, appropriately enough, house a photocopying bureau named 'Service Document Reproduction').

The Base financial affairs were organised from an office complex centered on No. 20 Cavendish Square, occupied by the Central Disbursing Office (67th Finance Disbursing Section), the Finances Office (135th FDS), Fiscal Office, the Reciprocal Lease-Lend Division, the Army Exchange Service, and the Special Service (Entertainment) Division. An unusual — certainly to British eyes — occupant of the Cavendish Square complex was the Soda Fountain Installation Division in Room 617 but the Command's more warlike Engineering requirements were attended to



Grosvenor Chapel, South Audley Street, just behind Grosvenor Square. A plaque on the wall outside the church records: 'In this Chapel the Armed Forces of the United States of America held divine service during the Great War of 1939 to 1945 and gave thanks to God for the Victory of the Allies.'



**TABLE 6 — ADDRESS LIST HEADQUARTERS COMMAND
UNITED KINGDOM BASE — AUGUST 1945**

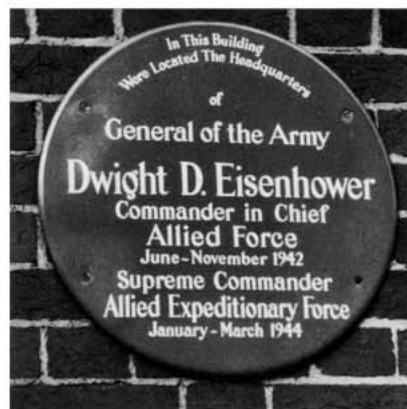
<i>Office</i>	<i>Location</i>	<i>Remarks</i>
Commanding Officer	20 Grosvenor Square	Also Administration and Adjutant General Depts.
Army Exchange Service	419 Oxford Street 20 Mount Street 197 Knightsbridge 37 Park Street	Officers Only Enlisted Men Only Refreshment Warehouse
Billeting Office	3 North Audley Street 5 North Audley Street	
Dental Laboratory	70 South Audley Street	
Dispensary — Medical Services	70 South Audley Street 53 Mount Street 54 Mount Street 76 Cadogan Place	
District Transportation Office	8 Upper Grosvenor Street 7 Grosvenor Square Stafford Hotel, 16 St. James's Street	Supplies RTO
Engineer Section	20 Grosvenor Square 50 Eaton Mews West	Billet Utilities
Judge Advocate General	20 Grosvenor Square	
Motor Transport	20 Grosvenor Square Park West Garage, Edgware Road	
Personnel Department	20 Grosvenor Square	
Provost Marshal	101 Piccadilly 96 Piccadilly	CID Investigator
Supply	29 Grosvenor Square 44 Adams Row 39 Adams Row Blackburn Mews 43 Adams Row 8 Balderton Street	Furniture Store Stationery Warehouse Petrol Service Station
Special Services	20 Grosvenor Square	
WAC Detachment	37 Upper Grosvenor Street 48 Park Street	Beauty Shop

Transportation nightmare today outside the headquarters of the US Quartermaster Corps — No. 1 Great Cumberland Place — prior to WWII private residences but now company offices.

from a suite in the **Selfridge** building, which also housed the Claims Department and a US Navy Officers Kit Shop. Neighbouring **No. 14 Duke Street** provided accommodation for the Base Transportation Office, which was responsible for all movements into, through, and out of the Base Area, and also for the Communications Section of the HQ's Signals Section. The vital Base Signals Delivery Service was allocated offices in **No. 9 North Audley Street (Audley House)**, a heavily guarded building that also housed the Medical Services Section.

The complete 1945 address list for HQ UK BASE is given in Table 5.

Headquarters Command UK Base, which had its principal offices at **No. 20 Grosvenor Square**, was the administrative and support formation responsible for the units providing the personnel who operated HQUKB. Thus it was a relatively compact organisation with responsibilities for the day-to-day routine operation of the 'Grosvenor Square Garrison'. These responsibilities can best be illustrated by reference to the respective roles of the two London-based transportation offices. The Base Transportation Office at **No. 14 Duke Street** was primarily concerned with the overall planning and control of movements throughout the Base, but the HQ Command District Transportation Office at **No. 7 Grosvenor Square** provided transport to meet local day-to-day demands, and manned the Railway Transportation Offices at the main London termini.



No. 20 Grosvenor Square. The headquarters of the Commander-in-Chief Allied Forces for the European Theater of Operations and also the HQ for US Naval forces in Europe (referred to as COMNAVEUR) — its role in 1982.



A jeep belonging to the Office of Strategic Services (see opposite page) stands outside No. 49 Mount Street — in August 1945 the London headquarters of the American Supreme Court Justice Robert H. Jackson, who was the US representative and Chief of

Counsel for the prosecution of the major European Axis war criminals (US Army). The building looks rather worse for its five-year war but in today's photo the splinter damage to the offices of Grant and Partners is hardly noticeable.





Buildings used by the Office of Strategic Services in London during the Second World War. The Commanding Officer, used No. 72 Grosvenor Street — now the offices of a ladies' toiletries organisation — while No. 59 houses Octopus Books.

Many of the personnel employed by the various headquarters were administered and quartered by individual units. Thus drivers employed by the District Transport Office might well have been members of the 77th Quartermaster Car Platoon or of one of the several Service Battalions, each of which had its own accommodation, headquarters, and administrative offices. By 1945, many of the troop units had already been transferred elsewhere, or remained in the UK in skeletal form only, but such units as the 150th Station Hospital, the 391st Military Police Battalion, and the Signals Companies still had an important role to play in the running of the HQs. There were several which could not be accommodated within the essentially residential areas, and although Fuel Service points and Motor Pools were established at several suitable West End sites, the exceptional storage needs of the Ordnance Corps meant that both 691st Ordnance Depot, the 3411th Ordnance MAM Company were necessarily assigned industrial premises in the north-west of the city.

No. 20 Grosvenor Square was a joint HQ for all US Forces in Europe and, in addition to the military personnel, it housed — as it does today — the Commander of the United States Naval Forces in Europe and his staff. The Naval HQ — a more compact organisation than that of the Army — had a port office at the **Royal Albert Docks**, and several small sections at other Mayfair addresses, but the greater part was effectively concentrated in four Grosvenor Square buildings. The 1945 address list reflects the redeployment that followed swiftly in the wake of Victory in Europe but, nevertheless, it provides a good indication of the extent of the US Naval presence in the capital.

The US Army Air Force was of course represented at **No. 20 Grosvenor Square** throughout the war years and had its own Command HQs at several locations outside the capital. By mid-1945, however, the end of the war in Europe, and the decision to transfer USAAF personnel to the Pacific for the closing stages of the war against Japan, had brought about a considerable reduction in the number of air force installations in London. Thus, at the time to which the surviving address lists refer, the Strategic Air Force presence had been reduced to a Rear HQ centered on Marylebone's **Bryanston Square**, and a Strategic Bombing Survey located at **No. 20 Grosvenor Square**, although the latter organisation had a great deal of information stored in the old USTAF HQ at Bushy Park. Additionally, the HQ 5th AACS Wing of the 89th AAF Base Unit was based at **Nos. 19-20-22 Upper Brook Street** (with a small detachment at **No. 1 Great Cumberland Place**), and

TABLE 7 — TROOP UNIT ADDRESS LIST — AUGUST 1945

<i>Unit</i>	<i>Address</i>	<i>Remarks</i>
1st Base Post Office	175 Oxford Street 102 Park Street 60 Grosvenor Street 68 Grosvenor Street	CO and Admin. Offices Orderly Room Finance Section
2nd Base Censor Unit	175 Oxford Street (3rd Floor)	Supply Officer; Sorting
3rd Base Censor Unit	60 Grosvenor Street	HQ
4th Group Regulating Station (Transportation Corps)	7 Grosvenor Square 22 Cadogan Place	Detachment
6th Base Censor Unit	60 Grosvenor Street	
7th Traffic Regulating Group	7 Grosvenor Place (3rd Floor)	
19th Signal Center Team	16 Montague Square	
31st Air Transport Group	20 North Audley Street	
55th QM Sales Store	27 Cadogan Place	
67th Finance Disbursing Section	Cavendish Square	
72nd Public Service Battalion	16 Montague Square	
77th QM Car Platoon	44 Green Street Rossmore Road Park West Garages Cumberland Garage, Bryanston Square	CO and Admin. Offices
91st MRU	14 Duke Street	
135th Finance Disbursing Section	Cavendish Square	
150th Station Hospital	Hatherley Street, SW1 83 St. George's Square 53 Mount Street	Transportation; Billets
HQ 303rd Station Hospital	96 Piccadilly	
140th Military Police Company	98 Piccadilly	CO
391st Military Police Company	101 Piccadilly 100 Piccadilly 7 White Horse Street Yarmouth Mews	Adjutant; Sergeant Major Supply Officer Motor Pool
634th AAA AW Battalion		
Battery D	51 Montague Street	
691st Ordnance Depot	Gorst Road, NW10 Sunbeam Road, NW10	
711th QM Battalion (Mobile) TC. Prov.	32 Portman Square 15 Elizabeth Street, SW1	Garage
805th Signal Service Company	16 Montague Square	Detachment 'A'
3121st Signal Service Company (Port)	17 Montague Square 16 Montague Square 51 Montague Square Montague Mews	Motor Pool
3262nd Signal Service Company		
Detachments 3273rd/3279th Signals Film Library	29 Davies Street	
3351st Signals Service Battalion	39 Upper Brook Street	
3411th Ordnance Map Company	Gorst Road, NW10	
3908th Signals Service Battalion	31 Davies Street 33 Davies Street 35 Davies Street 16 St. James's Place 3 Kings Yard Hall Place, Bexley, Kent	Mess Transportation
68th Signals Security Detachment		
6850th Press Censorship Detachment, MOI	Malet Street	
No. 1 Central Dental Laboratory	70 South Audley Street (3rd Floor)	
Motor Control Detachment	15 Elizabeth Street, SW1	
Service Platoon No. 1	Nos. 5, 7, 8, 19, 59, 61 and 62 Green Street	
(HQ Company, HQ Command)	99 Park Street	
	28 North Audley Street	
Service Platoon No. 2	44 Cadogan Place	

Air Transport Command had its large London Passenger Terminal at No. 18 Old Quebec Street.

Some elements of the HQ US Forces European Theatre remained in London long after the main HQ had moved to Europe. These were principally concerned with Press and Public Relations, but the staff of the Petroleum Liaison Office were accommodated with the Fuel Supply organisations of both US Navy and Air Force at No. 117 Park Street. Elements of the Chemical Warfare, and the Ordnance and Intelligence Branches remained in Grosvenor Square, sharing No. 27 with the London Liaison Office of the US-based Ground Reinforcement Command.

A rear party accommodated at No. 20 Grosvenor Square in 1945 represented the interests of the US Control Commission in Germany, and the Counter-Intelligence Branch and 'Central Personalities Index' of that organisation's Intelligence Division remained at No. 32 Great Castle Street (close to Cavendish Square) until well after the end of the war in Europe. Another intelligence organisation that retained a significant presence in London throughout 1942-45 was the Office of Strategic Services (the forerunner



Norfolk House in St. James's Square — probably the most famous of the Allied headquarters buildings in London. This was COSSAC (Chiefs of Staff to the Supreme Allied Commander) HQ for two invasions. From here, General of the Army Dwight Eisenhower led the staffs of the fighting services of the Allied nations in the planning and launching of Operation TORCH from June 24 to November 8, 1942, and for Operation OVERLORD between January 16 and June 6, 1944. For over a century, Norfolk House had been the town residence of the Dukes of Norfolk although the original building was demolished and had been rebuilt by 1939. Today, having been refurbished, it is just another of London's office blocks up for rent.



One of the several addresses taken over by the US Office of War Information — this is the Publications Division at No. 11 Carlos Place, which confusingly stands directly alongside No. 49 Grosvenor Square! Note the bricked up windows and entrance on the right (US Army).



TABLE 8 — BUILDINGS OCCUPIED BY US NAVAL FORCES IN EUROPE
AUGUST 1945

<i>Building</i>	<i>Occupant</i>	<i>Remarks</i>
20 Grosvenor Square	HQ US Naval Forces in Europe	COMNAVEUR
15 Grosvenor Square	HQ US Naval Forces in Europe	Deputy Commander
20 Grosvenor Square	Communications Branch	
	Photo-Litho Section	
	Garage	
	Building Superintendent	
18 Grosvenor Square	Naval Air Branch	
	Building Maintenance	
	Disbursing Office	
	Flag Officer Liaison	
	Intelligence Division	
	Secret Mail Center	
	Supply Department	Part
	British Liaison Officer	
15 Grosvenor Square	Chaplains	
	COMPHIBSUKAY	
	Headquarters Company	
	Historical	
	Legal Section	
	Medical Section	
	Naval Attache	
	Operations and Shipping Division	
	Personnel Services Section	
	Plans and Logistics Section	
	Public Works	
	Shore Patrol	
	Supply Department	Part
	Transportation	
	War Crimes Section	
8 Grosvenor Square	File Room	
	Postal Office	
	Fleet Post Office	Part
	Mail Room	
	Naval Attache File Room	
	Registered Publications Issues	
	Welfare and Recreation Department	
	Communications Center	
14 Duke Street	COM NAVFORGER	
177 Regent Street	Dispensary	
50 Upper Brook Street	Education and Training	
Huts, Grosvenor Square	Fleet Post Office	Part
25 Bruton Street	Tanker and Petroleum Officer	
117 Park Street	Supply	
39-46a North Row	Officers' Uniform Shop	
Selfridges		

TABLE 9 — BUILDINGS OCCUPIED BY THE US AIR FORCE — AUGUST 1945

<i>Building</i>	<i>Occupant</i>	<i>Remarks</i>
18 Old Quebec Street	Air Transport Command	London Passgr. Terminal
1 Great Cumberland Place	Air Transport Command 89th AAF Base Unit (HQ 5th AACs Wing)	Public Relations Det. 131st AACs Sqdn
19 Upper Brook Street	89th AAF Base Unit (HQ 5th AACs Wing)	HQ 131st AACs Sqdn 'D'
20 Upper Brook Street	89th AAF Base Unit (HQ 5th AACs Wing)	HQ 5th AACs Wing
21 Upper Brook Street	89th AAF Base Unit (HQ 5th AACs Wing)	HQ 5th AACs Wing
22 Upper Brook Street	89th AAF Base Unit (HQ 5th AACs Wing)	HQ 5th AACs Wing
4 Bryanston Square	89th AAF Base Unit (HQ 5th AACs Wing) HQ US Strategic Air Forces (Rear)	Sec. 'E' 132nd AACs Sqdn Armament Representative Medical Services Station HQ Ordnance Training Administration QM Personnel Directorate RAF Liaison HQ Services Historical Section Station HQ (Part)
5 Bryanston Square	HQ US Strategic Air Forces (Rear)	Air Inspector OIC and Staff British Army Liaison Medical Services Statistical Control Station HQ (Part) Fiscal Section
6 Bryanston Square	HQ US Strategic Air Forces (Rear)	Intelligence Directorate
7 Bryanston Square	Air Technical Service Command HQ US Strategic Air Forces (Rear)	Intelligence Directorate Intelligence Directorate Post-Hostilities Plans
9 Bryanston Square	Air Technical Services Command (Europe) HQ US Strategic Air Forces (Rear)	Intelligence Directorate
10 Bryanston Square	HQ US Strategic Air Forces (Rear)	Intelligence Directorate
11 Bryanston Square	HQ US Strategic Air Forces (Rear)	Intelligence Directorate
12 Bryanston Square	HQ US Strategic Air Forces (Rear)	Intelligence Directorate
13 Bryanston Square	HQ US Strategic Air Forces (Rear)	Intelligence Directorate
14 Bryanston Square	HQ US Strategic Air Forces (Rear)	Intelligence Directorate
15 Bryanston Square (Basement)	Air Technical Services Command (Europe)	Station HQ
59 Weymouth Street	HQ US Strategic Air Forces (Rear)	Air Document Research
28 Grosvenor Square	HQ US Strategic Air Forces (Rear)	Public Relations
Cavendish Square	Air Technical Services Command (Europe)	Air Technical Section
14 Duke Street	Air Technical Services Command (Europe)	Transportation Office
St. John House, Smith Square	Air Technical Services Command (Europe)	Maintenance Directorate
117 Park Street	Air Technical Services Command (Europe)	Petroleum Section
2 South Audley Street	Air Technical Services Command (Europe)	UK Procurement Section
20 North Audley Street	302nd Transport Wing	London Traffic Office
20 Grosvenor Square	Strategic Bombing Survey	

of the CIA), responsible for the conduct of clandestine operations in occupied Europe, which was located at **Nos. 59 and 72 Grosvenor Street, No. 72**, which housed the Commanding Officer, personnel and communications offices, seems to have been the principal administrative centre, and there was a Motor Pool at **Reeves Mews**. WAC personnel and enlisted men were billeted at **No. 49 Upper Brook Street**, and **No. 4 Cadogan Place** respectively.

The presence of such a large US force in the United Kingdom, and the extent of the US commitment to the war effort, inevitably meant that the various Federal authorities involved also required an increased representation in London. Some departments could be accommodated at the **Embassy at No. 1 Grosvenor Square** but others, like certain naval attaches and advisors, and the London Munitions Assignment Board — a vital link in the transatlantic supply chain — were accommodated at **No. 20**. The War Shipping Administration — responsible for the co-ordination of US mercantile marine activity — established its principal offices at **No. 2 Harewood Place** and in **Stratton Street**, and the Office of War Information operated from a number of central London addresses, coordinated from a headquarters at **No. 346 Strand**.

Accommodation for the thousands of servicemen employed at the HQs necessitated the requisitioning of a great deal of property in Central London but it seems that no comprehensive billeting schedule has survived. Much of the property involved — like that in **Norfolk Crescent** — has been demolished in the course of redevelopment schemes. A great deal of the property mentioned in Table 7 (Troop Units) survives in one form or another, as does much of that known to have been used as duty billets for officers on the Headquarters staffs. Many hotels were either wholly or partially taken over as duty billets and of these unquestionably the most celebrated was the 500-bedrooomed **Grosvenor House in Park Lane**, which, at the height of the pre-D-Day build-up, served more than six thousand meals a day whilst acting as the Consolidated Officers Mess for the HQ personnel.

There was much opposition from the American West End-based staff officers when General Eisenhower forced the move from 20 Grosvenor Square to the huddled camp in Bushy Park, Teddington. The move for the General to 'Widewing' took place on Sunday, March 5, 1944, Captain Harry Butcher, his Naval aide, commenting: 'My teeth occasionally chatter yet I wear my heaviest GI underwear. The floors are cement and are damp'. Today this memorial which specifically names the USAAF HQ which was situated alongside, is one tangible reminder in the reinstated park.

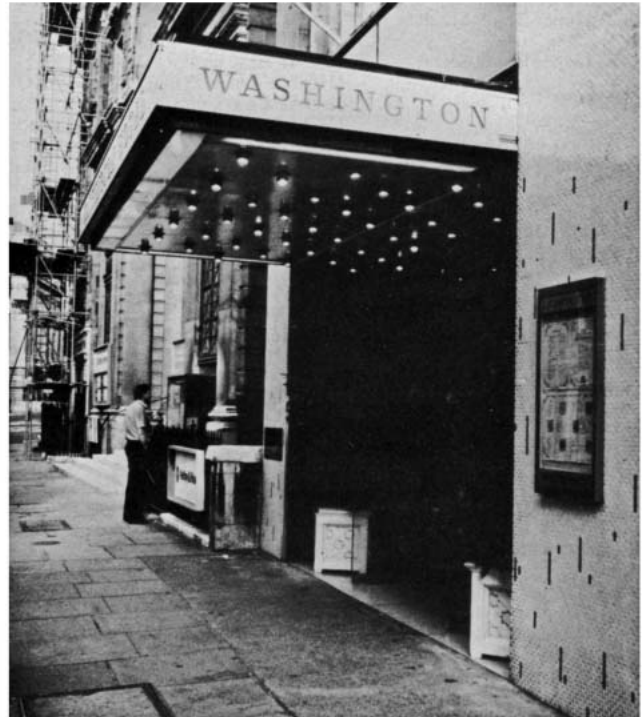


TABLE 10 — LONDON AMERICAN RED CROSS CLUBS

Service Club for Women	48 Charles Street	Jules Officers' Club	Jermyn Street
Officers' Club for Women	10 Charles Street	Liberty Club	12 Upper Woburn Place
Columbia Club	75 Seymour Street	Mostyn Club	32-50 Edgware Road
Duchess Officers' Club	1 Duchess Street	Rainbow Corner	Shaftesbury Avenue
Eagle Club	28 Charing Cross Road	Reindeer Club	6-7 Clifford Street
Golden Square	Upper John Street	Russell Square Club	Foyer Suisse, Bedford Way
Hans Crescent Club	Hans Crescent	Washington Club	6 Curzon Street
Interstate Club	37 Dover Street		



Left: One 'Fourth of July' event for General Eisenhower on that busy Saturday in 1942, just ten days after he arrived in England, was to open the Washington Club in Curzon Street. He is pictured here with Admiral Harold R. Stark (Eisenhower Library).



Right: At the end of the war it became the Washington Hotel and now belongs to the Grand Metropolitan group. Our shot was taken on Independence Day 1982 — an early Sunday morning exactly forty years later.

In the thirty-seven years that have passed since the war's end, London has seen many changes and most of the visible reminders of the wartime presence of so many Headquarters and Foreign Government offices have simply vanished beneath a tide of redevelopment. Some of that which remains is threatened. Even as this article was being researched, Eisenhower's former COSSAC HQ at Norfolk House was being gutted as part of a major redevelopment, and a similar fate clearly lies in store for the several other buildings that are currently either empty or 'For Sale'. Individually, their historical importance is perhaps trivial but, as a whole, the hundreds of properties housed the administrative heart of the machine that won the European war. It seems inappropriate therefore that the full extent of the Allied military/governmental complex should be allowed to go unremarked and, although this article does not profess to be a complete listing, nor to provide a full chronology, it is hoped that it will re-awaken some interest before too many of the former HQs vanish for ever.

In Piccadilly, Stratton House, wartime home of the Poles and Dutchmen, remains, albeit refurbished and containing the head office of the giant British Electric Traction industrial group. A few blocks to the west Nos. 96-101 Piccadilly, base for the white-helmeted MPs, now houses the officials of an inter-governmental maritime organisation. Most of the blocks of flats were returned to private occupancy before the 1950s but, since that time, changing patterns of ownership have brought many commercial concerns to

TABLE 11 — OFFICERS' DUTY BILLETS 1945

Street	Properties used as duty billets
Basil Street, Knightsbridge	Lincoln House, Washington House
Berkeley Street	Mayfair Hotel
Berkeley Square	Berkeley Hotel
Charles Street	Nos. 26, 33
Chesterfield Hill	Nos. 2, 11
Cromwell Road	Lurgan Hotel
Davies Street	Claridges Hotel
Devonshire Street	Nos. 11, 40
Gloucester Place	No. 33
Gloucester Road	Baileys Hotel
Granville Place	Principia Hotel
Great Portland Street	Portland Court Flats
Half Moon Street	Green Park Hotel
Harley Street	Nos. 4, 11, 15, 29, 46, 52, 58, 65
Hill Street	No. 6
Kendal Street	No. 35
Knightsbridge	Hyde Park Hotel
Lancaster Terrace	Nos. 18, 19
Marble Arch	Mount Royal Hotel, Cumberland Hotel
Mount Street	No. 22, Connaught Hotel
New Cavendish Street	No. 72
Piccadilly	Athenaeum Court Hotel, Piccadilly Hotel, Ritz Hotel, Park Lane Hotel
Park Lane	Grosvenor House Hotel, No. 45, Dorchester Hotel
Queen Anne Street	No. 40
St. James's Street	Nos. 34, 63
South Audley Street	No. 8
Strand	Savoy Hotel
Talbot Square	Nos. 9, 14
Upper Berkeley Street	No. 56
Upper Wimpole Street	No. 1
Weymouth Street	Nos. 29, 34
Wimpole Street	Nos. 7, 9, 30, 31, 76, 77



Surprise for travellers arriving at the National Express coach station in Elizabeth Street. Virtually unchanged in war and peace, it became a freight warehouse for the Office of War Information.

Mayfair and Belgravia. The OSS HQ at 59 Grosvenor Street now houses Octopus Books Ltd; the Indian High Commission is to be found at the old HQ UK Base Ordnance Section at No. 38 Grosvenor Square, and the Ski Club of Great Britain has its HQ at the former Belgian Colonial Ministry in Eaton Square. The Belgians have placed a plaque on the wall of their Embassy to commemorate the stay of their wartime government, but there has been no such concession by the Polish authorities, whose one-time consulate at No. 67 Portland Place now serves as HQ for the Royal Air Force Benevolent Fund.

Of the buildings that are gone forever, No. 14 Duke Street, which in its heyday housed the Base's transportation specialists, is now — almost appropriately — a modern office block serving as one of the several London offices of the IBM computer corporation. There is a slight 'American connexion' too at No. 479 Oxford Street — once the Quartermaster's Department Sales Store and now rebuilt as a Tennessee Pancake House — but it is in Grosvenor Square that the tangible reminders of that all-important US presence survive. The sheer bulk of the huge post-war Embassy building now dominates the tree-lined square. Nos. 40-44, where the Quartermaster's Corps finished their war, have gone giving way to the discreet red-brick frontage of the new Britannia Hotel, but there is a statue of Franklin D. Roosevelt, the architect of Lease Lend, where the Navy's drab-painted Nissen huts once stood. Around the corner in Upper Grosvenor Street, Wladyslaw Sikorski's

wartime residence, grey and rather neglected, seems to symbolise the frustrated hopes of his people, whilst behind the Naval HQ at No. 20 Grosvenor Square there still stands a grey-

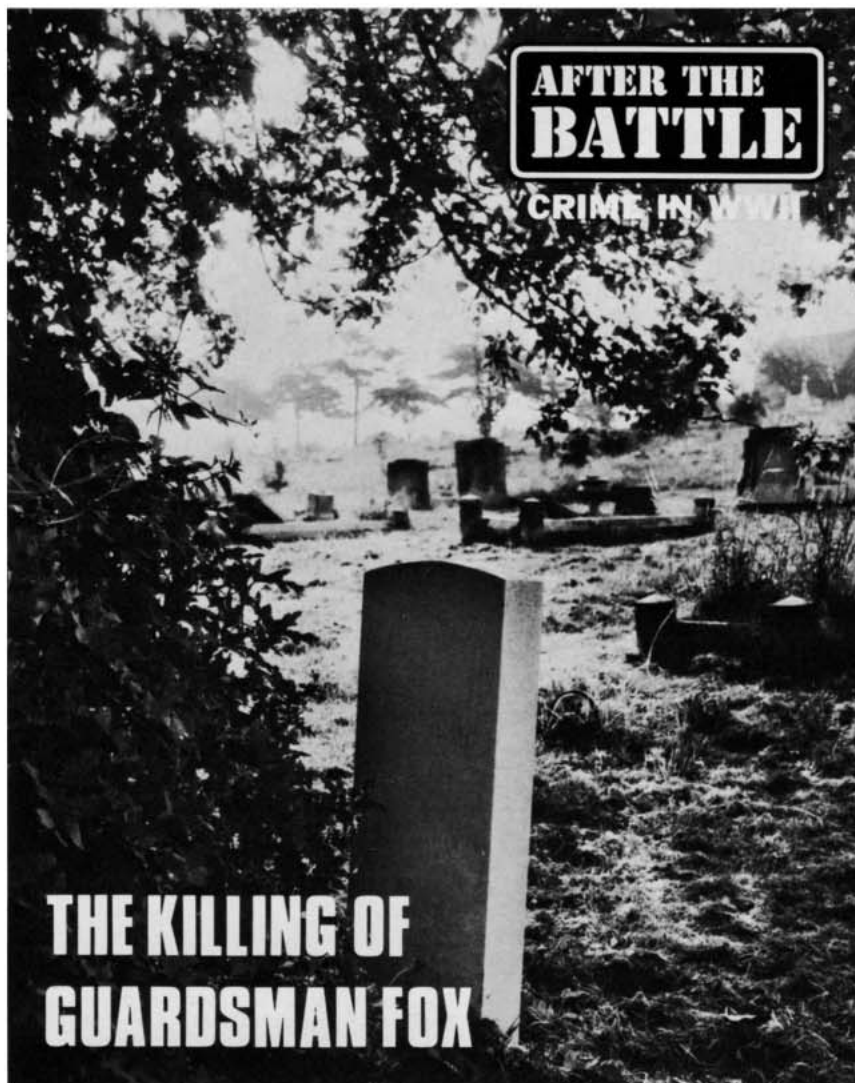
painted International Lodestar truck waiting for the day's official mail — perhaps the last reminder of the way in which the wartime visitors changed the face of London.

TABLE 12 — US FEDERAL OFFICES IN LONDON — AUGUST 1945

Address	Office
1 Grosvenor Square	US Embassy Consular Section Library Mission for Economic Affairs US Military Advisor, European Advisory Commission US Political Advisor, European Advisory Commission
20 Grosvenor Square	London Munitions Assignment Board Technical Advisor, European Advisory Commission Naval Advisor, European Advisory Commission Military Attache, European Advisory Commission
40 Berkeley Square	Bureau of the Budget Mission Foreign Economic Administration Military Attache to the Allied Governments in England
2 Harewood Place	War Shipping Administration
49 South Audley Street	War Shipping Administration
Mayfair Court, Stratton Street	War Shipping Administration
346 Strand	Office of War Information
25 Gilbert Street	Office of War Information
Bush House	Office of War Information
33 Davies Street	Office of War Information
35 Mount Street	Office of War Information
11 Carlos Place	Office of War Information

Hardly the Lodestar truck espied by our author John Reed behind No. 20 but, nevertheless, the old American car pool at Reeves Mews near the 'Square' (US Army).





BY ANDY SAUNDERS

One tragic incident, which was the result of the not infrequent trouble between servicemen of different units and nationalities stationed in the UK during the Second World War, was the knifing of Guardsman Edward Frank Fox of the 2nd Armoured Battalion, Grenadier Guards, in Eastbourne on July 1, 1944. The knifing resulted in the death of Fox, and the conviction of Private 1st Class Juan G. Marquez (38340484) of the 129th Signal Radio Intelligence Company, US Army, for the 'wilful, felonious and unlawful' killing of Fox. Visitors to Brook Street Cemetery, Erith, Kent, could be excused for thinking that the story behind the Commonwealth War Graves Commission standard-pattern headstone erected over Fox's grave was probably that he died in action, or as the result of wounds received in battle. Few are probably aware that a sordid fight on the streets of Eastbourne is the truth behind the death of Edward Fox.

At about 1.30 p.m. on July 1, 1944, two American GIs of the 129th Signal Radio Intelligence Company left their billet at 19 Le Brun Road, Eastbourne, and ventured into town. They were Privates Caro and Marquez and, after watching a film, both men left the cinema and made for a favourite rendezvous of soldiers in Eastbourne — Snappy-Snax Cafe at 3 Albert Parade, Green Street, in the Old Town district. According to the testimony of Marquez both men carried knives '... for protection, as (they) had heard of fellows being beaten up'. After eating a meal at the cafe both men left for the Drive Hotel on the

opposite side of the street, drinking until 8.00 p.m. before departing for a dance at the nearby Lamb Hotel where they met up with two more American soldiers, Privates Clemente and Garza. All four then left at 10.30 p.m. to return to Snappy-Snax.

Proprietor 'Bill' Swaddling, a well-known local character, was undoubtedly doing a roaring trade that evening and, in a town

devoid of much of its civilian population and with the tourist trade dead, he was no doubt delighted to see some fifteen Grenadier Guardsmen, four GIs and the few civilians who had crowded into his tiny cafe. After eating a meal the four Americans got up to leave but, from the statements of those in the cafe at the time, there had already been some acrimony and tension between the Guardsmen and GIs before they left. As they got to the door, Private Garza was accosted by Guardsman White, words were exchanged and Garza grabbed White by the jacket. Taking Garza's hand away from his jacket White asked him what had been said, to which Garza replied: 'Come outside and we'll show you'.

At this stage Privates Caro, Clemente and Marquez were already outside on the pavement, but they were very soon followed by Garza and Guardsmen White, Scarlett and Fox and a number of their companions. Fox had been standing in a queue waiting to be served by 'Bill' Swaddling when the fracas had started and he had rushed out after the GIs.

Out on the pavement Garza took to his heels, and instead Guardsman Fox and his colleagues were confronted by Caro, Clemente and Marquez. It was Marquez who drew his knife — a wicked seven-inch blade carved with the initials ADR on its handle after its owner, Arthur Ramos, who had loaned it to Marquez. As Fox approached Marquez made a vicious upward stroke with the knife, stabbing Edward Fox in the groin. Having struck Fox, Marquez ran off after Garza with another Guardsman in hot pursuit — but who was unable to catch him. Fox, meanwhile, groaning and reeling from his wound, called to Guardsman Beech: 'He's knifed me. Get him'. Bleeding profusely, Fox was carried back into the cafe but on arrival at hospital shortly afterwards was found to be dead. Post-mortem examination at Eastbourne's Grove Road Municipal Mortuary by Dr. Arthur Shera, the Police Surgeon, revealed a deep wound to the right groin which had penetrated seven inches to the base of the spinal column and pierced both an artery and vein. Death had been as a result of shock from severe internal haemorrhage.

Marquez, meanwhile, unaware of the fatal outcome of his attack, but aware that he had injured Fox, disposed of Ramos's knife by hiding it under one of the bushes in the garden of their large billet in Le Brun Road. It was later found there and subsequently presented as an exhibit at the trial of Marquez.

Despite the wartime restrictions on reporting, the General Court Martial of Marquez was covered in some detail in the



No. 19 Le Brun Road, the billet of Privates Caro and Marquez of the 129th Signal Radio Intelligence Company, and from where they set out for the Snappy Snax cafe on the afternoon of July 1, 1944 (F. Ferridge).



Eastbourne Herald of August 5, 1944 following an earlier resume of the inquest in the *Eastbourne Gazette* of July 5, 1944, when it was recorded that the inquest on Fox was opened at Eastbourne Town Hall on Monday, July 3, 1944 by the Coroner, Dr. E. F. Hoare, and adjourned *sine die*. Evidence of identification on Fox was given by Lieutenant Earl Kimberley of the 2nd Armoured Battalion, Grenadier Guards, and Detective Inspector Webber reported that he had made certain enquiries into the incident and was able to tell the Court that a person had been detained and would be dealt with by a US Military Court.

The Court Martial of Marquez was held on August 4, 1944 and was reported on in great depth by the *Eastbourne Herald*. Although the location of the proceedings is not recorded, it could well have been at Eastbourne Town Hall. Judge Advocate for the trial was 2nd Lieutenant M. L. Borawiak, and Lieutenant R. W. Dudley acted as defence counsel, with Colonel N. W. Whited as Court President. The accused, Juan Marquez, aged twenty-one, pleaded not guilty to the charge of voluntary manslaughter against Edward Fox of 2 Northumberland Avenue, Erith, Kent, described as a labourer in civil life. Despite his 'not guilty' plea, Marquez, when interviewed at Eastbourne Police Station on July 3 by Agent Edmund P. Crovo of the Criminal Investigation Division of the US military,

After watching a film and visiting the cafe, shortly after opening time the two GIs entered the bar of the Drive Hotel (left) in Green Street, drinking until 8.00 p.m. when they left for a dance at the nearby Lamb Hotel (right) (F. Ferridge).

admitted in a statement that he had used the knife on Fox. The knife was recovered from beneath a bush on the lawn of 19 Le Brun Road and given to Agent Crovo by Private Caro. The knife, produced in court as evidence, showed traces of human blood on its blade.

A thorough examination of all the facts was carried out by the Court and the witnesses called included Guardsmen Scarlett, White and Beech and Private Clemente. Marquez's commanding officer, Captain Edward Grubin, was called to give a character reference and stated that he had joined the company shortly after its activation in December 1942. Since that date his character was described as 'excellent'.

By a two-thirds majority the Court found Marquez guilty of the offence and he was sentenced to be dishonourably discharged from the service, forfeit all pay and allowances and to be confined to hard labour for ten years. A Board of Review report by Judge Advocates Riter, Sargent and Stevens dated November 24, 1944, upheld the findings of the General Court Martial and, signed by Brigadier General E. C. McNeil, US Army Assistant Judge Advocate General, confirmed

the place of confinement for Marquez as the Federal Reformatory, Chillicothe, Ohio.

After the war had ended, a review of all sentences imposed by American military courts during hostilities was carried out. In the case of Juan Marquez, on November 20, 1945, the Adjutant General, acting under Presidential direction from the Secretary of War, remitted that part of the sentence which was in excess of five years. The Federal Reformatory has since been euphemistically renamed the Chillicothe Correctional Institute.

Today only a few people living in the vicinity of the incident recall the death of Guardsman Fox. 'Bill' Swaddling died some years after the war and 'Snappy-Snax' is no more. Instead, the former cafe at 3 Albert Parade, Green Street, Eastbourne, is now the butchery department of the Co-Op although the Drive Hotel opposite and the 15th century Lamb Inn nearby remain unchanged. The large detached house, that was once the Americans' billet still stands at 19 Le Brun Road, its present occupiers unaware until now of the wartime court case and how one of the Americans brought notoriety to that address as a convicted murderer.



Just an ordinary stretch of pavement outside an ordinary parade of shops. Thirty-eight years ago, the Co-op butchery was a cafe — Snappy Snax — and it was because of an act committed on the pavement outside that Private First Class Juan G. Marquez

was convicted of violation of the 93rd Article of War under the US military penal code, to wit: 'On or about 1 July 1944 wilfully, feloniously and unlawfully did kill Guardsman Edward Fox by stabbing him with a knife'.

